FRATRIS ROGERI BACON

COMPENDIUM STUDII THEOLOGIAE

EDIDIT

H. RASHDALL

UNA CUM

APPENDICE

DE OPERIBUS ROGERI BACON

EDITA PER

A. G. LITTLE

ABERDONIAE: TYPIS ACADEMICIS

MCMXI

Republished in 1966 by
Gregg Press Limited
1 Westmead, Farnborough
Hants., England

Printed in Western Germany

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INTRODUCTION.

THE treatise here printed is found in Royal MS. 7 F. vii. in the British Museum, a folio vellum MS., written at the end of the thirteenth century. On page 13 of the volume in which it is included is the following (erased) inscription: "Iste liber est de ordine fratrum minorum concessu W. Herebert qui eum ad ordinem procuravit". The MS. (with 7 F. viii., which also contains writings of Roger Bacon) was in the Lumley Library, and afterwards came into the possession of Prince Henry's chaplain, John Prideaux, Bishop of Worcester (1641-50), whose name occurs in a note (7 F. vii. fol. 46), and thence into the Theyer collection. It bears the name of John Theyer, with date 1651. A MS. belonging to University College (No. 47) is a transcript of this MS. made by Prideaux. He has sometimes dealt freely with his text, and occasionally omits passages which he found it difficult to read. My text is that of the Royal MS. (R.), except where I have noted the fact that I have adopted the reading of the University College MS. (O.) or have altered it conjecturally. The MS. is in places very much contracted and hard to read. It was evidently written by a scribe who very imperfectly followed what he was writing.

The MS. contains the following works:—

(1) *Pars Quarta Compendii Studii Theologie* (*i.e.* the sections on mathematics and geography which now make part of part iv. of Roger Bacon's *Opus Majus* as printed by Bridges).

(2) *Tractatus de Visu et Speculis* (a fifteenth-century title), [probably not by Bacon].

(3) *A Letter of Henry of Southwark to ——, Bishop of Constantia* (? Coutances) *on Optical Problems*.

(4) *Tractatus de Corporibus Celestibus* (fifteenth-century title),

included with (1) by Bridges in part iv. of the *Opus Majus*. The author of the Catalogue thinks that this really belongs to the *Opus Minus*.

(5) *De Laudibus Mathematice* (fifteenth-century title) another revision of what occurs in No. 1 (above) and in part iv. of *Opus Majus*.

(6) The present work.

(7) The third book of the pseudo-Ovidian poem, "De Vetula," forged in Ovid's name, apparently by Richard de Fournival, Chancellor of Amiens (*c.* 1246). (See the Introduction by Cocheris, *La Vieille*, 1861, an edition of the medieval French translation of the work.) It is presumably inserted here because quoted by Bacon; *cf. Op. Maj.*, ed. Bridges, p. 263.

(8) Another Baconian fragment on *Communia Naturalia*.

(9) A fragmentary and very corrupt copy of chapters forming the opening part of *diffinitio quarta* in a scheme wherein languages, logic and mathematics appear to have formed *diff.* i.-iii. The matter is in part the same as that of the *Communia Naturalia* in art. (8) above.

I am indebted to Mr. Gilson of the British Museum for the use, prior to publication, of the new catalogue of Royal MSS., from which I have derived the preceding information. I append the description of the present work in the new Catalogue:—

"The first part, on the three causes of error (*cf.* the first three causes in *Op. Maius*, part i.) is complete (extending to little more than three pages), and enough (dist. i., capp. 1-6) exists of the second to give an idea of its scope, which seems to be confined to a study of the logical apparatus of scholastic disputation, containing a discussion of that *vis significativa* of words to which the author alludes in *Op. Tertium*, cap. xxvii. as an important branch of grammar. It seems, therefore, improbable that Little is right in supposing that the *quarta pars Compendii Studii Theologie* in 7 F. viii. belongs to the same scheme. There is, however, some reason for supposing that art. (9) [see above] below really forms part of it."

I do not venture to express an opinion as to the com-

plicated questions here raised. I shall not attempt to settle which fragments belong to the proposed *Compendium Studii Theologie* and which do not, or to determine their order and mutual relations. It is enough to say that what is here published is a fragment of an uncompleted work of which other fragments survive. From the work itself it is clear that it was written in A.D. 1292 (see below, p. 34).

I will proceed to give some account of the contents, and then to make a few remarks upon their importance and significance. In order to make the summary fairly intelligible to readers who are not experts in scholastic philosophy, and to emphasize the essential points, I have not attempted to reproduce *all* the arguments adduced by Bacon in support of his various conclusions.

The work, as the Preface explains, is divided into two parts, the first of which is to deal with the causes of error, the second with the establishment of truth and the refutation of error. Bacon was more the child of his age than he imagined himself to be.

The rest of the Preface is occupied with a characteristic denunciation of one chief cause of error—the undue reliance upon authority. There is a certain irony in the fact that the writer's argument in favour of independent thinking as against authority consists chiefly of a series of citations from Scripture, Cicero, Pliny, and Seneca.

PART I.—Chapter I. deals with the "communication of liberal knowledge". Roger Bacon tells us that he is at last approaching a difficult task which he has long delayed, and apologizes for his resolution to delay no longer in a string of common-places from "Solomon," Terence, Ovid (a spurious work), Seneca, Sallust, Jerome, Josephus, Alexander (Aphrodisiensis) and Boethius on the undesirability of delay and the desirability of communicating knowledge.

Chapter II. is on the causes of human error. The principal stumbling-blocks in the way of truth (*veritatis offendicula*) are (1) the excessive influence of "authority," (2) custom (*consuetidinis diuturnitas*), (3) vulgar opinion (*sensus multitudinis*

imperite). Another string of quotations from some of the above authors, with the addition of Aristotle, the *Vita Aristotelis*, and Chrysostom. The multitude has generally been wrong, as is shown by the number of false religions and heresies and by the scanty obedience to the gospel shown even by those who have remained in the true faith, those whose faith is *informis* and dead for want of works. Josephus and "Aristotle" (*Secreta Secretorum*) are cited in support of the proposition that the truth of philosophy was originally given to the Jewish patriarchs and prophets before the dawn of Gentile philosophy. Among the Greeks only the Peripatetics, according to Aristotle himself, "remained in the truth of philosophy," while he pronounced the Pythagoreans, Platonists and Stoics (!) to be in error. Roger appeals to the life of Aristotle for the statement that that author wrote a thousand volumes, and to Cicero's *Topics* for the fact that Aristotle was known to few. He alludes to Aristotle's "exile" to show that he "shunned the multitude and philosophized with very few," and then follows the important and often-quoted historical statement that Aristotle's "Natural Philosophy and Metaphysics, and the commentaries of Averroes and others upon them, were translated in our times, and were excommunicated at Paris before the year of our Lord 1237 on account of the eternity of the world and of time, and on account of the book about divination of dreams, which is the third about sleep and waking, and on account of many other things erroneously translated. His logical works also were received and read at a late date (*tarde*). For the blessed Edmund, Archbishop of Canterbury, was the first who lectured at Oxford upon the books of Elenchs in my times, and I have seen Master Hugo, who was the first to read the book of Posteriors, and I have seen his work." He continues: "There were then but few who were held worthy on the aforesaid Philosophy of Aristotle, . . . and almost none up to this year of our Lord 1292, as shall be most copiously and evidently shown in the following chapters. And later still were made known the Ethics of Aristotle, and they were but lately and rarely read by the Masters; and the whole of the

rest of the Philosophy of Aristotle, in a thousand volumes, in which he treated all the Sciences, have not yet been translated or communicated to the Latins; and therefore almost nothing worthy is known of the Philosophy of Aristotle, and up to the present there have been but three who have been able to judge truly about those few (books) which have been translated."[1]

BOOK OR PART II.—The "prologue" tells us that the writer will now proceed to establish the truths themselves and to "evacuate" errors in detail. He admits that the proper subject of theology should be the study of the sacred text, but "for the last fifty years the theologians have been principally occupied about questions (*questiones*), as is evident to all through the treatises and *summe* and horse-loads which have been composed by many". He will therefore yield to the prevailing taste, although, according to Palladius on Agriculture, "incomparably greater is the profundity and magnificence of wisdom, and therefore greater is the difficulty, shown in expounding the text than in questions". A great part of theology as now understood is really philosophy (*in terminis philosophie*), and even the purely theological subjects, "about the blessed Trinity and the fall of our first parents and the glorious Incarnation, and about sins and virtues and gifts and sacraments and desires, and about punishment, are chiefly ventilated by authorities and reasons and solutions drawn from philosophical considerations, and therefore, as it were, the whole occupation of Theologians is now philosophical alike in substance and in mode". Roger will therefore deal with the speculative philosophical questions commonly treated of by Theologians, endeavouring to treat of all the topics which properly fall under one head once for all, instead of recurring again and again to the same topics as each particular question

[1] I will not venture to guess who these were. It is not probable that he would include the great Dominicans, Albert the Great and Thomas Aquinas, though it may be questioned whether any others have an equal right to be included. The Anti-Thomist (though Dominican) Archbishop Robert Kilwardby is likely to have been one: William de le Mare may have been another. *Cf.* Rashdall, *Universities of Europe in the Middle Ages*, II, p. 529 *sq.* Was Roger Bacon himself the third?

is raised. As the whole difficulty about "real truths" depends upon terms and propositions and arguments, he will begin by dealing with terms; and, in justification of this procedure, he enumerates the contents of the ten books of Aristotle's Metaphysics which he knew with a view of showing that they are as much concerned with logic as with metaphysics. Many errors have arisen through misunderstandings about terms.

Chapter I.: On the nature of signification in general (*de ratione significandi generali*, we should possibly read *in generali*) Bacon proceeds to a classification of "signs" (*signa*), which he had excogitated himself before he discovered substantially the same thing in Augustine *de Doctrina Christiana*. A sign may be either natural or imposed by the mind (*a natura vel datum ab anima*). A natural sign may be either a sign by "natural concomitance" or a sign which naturally represents the thing signified. Of the first kind there are two varieties. The sign may be one which enables us to infer the thing signified by concomitance or by induction (*illationem*) and natural consequence, as we infer that an animal has given birth to offspring because it has milk, or predict that the sun will rise when we see the dawn; or the inference may be merely probable, as a red sky in the morning is a sign of rain. Signs which are naturally representative of the object are those which are really like that which they represent, as a footprint, or an image of a man. The sign given by the mind may be of two kinds—(*a*) when the sign, according to Aristotle, signifies naturally (*i.e.* when nature compels the animal to express what is in its mind in this way), as a dog naturally expresses its mind by barking, or (*b*) the sign may be imposed at pleasure and by voluntary imposition (*ad placitum et per impositionem voluntariam*), as in the case of human language. The objection that the first of these subdivisions is really identical with the natural sign is then dealt with. The reply comes to this, that in the first case the inference is based upon a relation of cause and effect in nature; in the second case, the sign is natural only in the sense that nature compels all animals of a certain species to express (say) anger in a par-

ticular way. It is objected that in this last case the sign is really by imposition, since the sign is connected with the thing signified by the *intellectus agens*, *i.e.* God. Bacon replies that as "works" made by the mind (*ab anima*) such things are artificial, but as signs they are natural because it belongs to the essence of the species to signify its feelings in this way. Another objector is made to suggest that in that case the sign is really artificial, as when an artist arbitrarily declares that this figure shall be a figure of St. Nicholas and not that of another saint. Bacon replies: "Dominantur naturalia ab eorum essentia configurata arti". The meaning of these words seems to be that, though it belongs to the essence of a dog to bark, the quality is not a necessity of thought (like a geometrical axiom), but merely a consequence of the decree of the great Artificer (*arti* is of course ablative). Thus in one sense such a sign is a sign by imposition, though in another sense a natural sign. Bacon here mentions St. Augustine's [1] doubt as to whether animals utter sounds "with any intention of mind," and inclines to think they do, because a hen, for instance, makes a different sound when it is teaching its chicks to beware of a hawk from what it makes when it invites them to their food; and he goes on to remark that not only the sounds uttered by the sensitive soul, but even those which proceed from the intelligent soul (*anima intellectiva*) may be instinctive and without deliberation, as are our expressions of joy and sorrow, hope and fear, which, like the motions of young children, precede all deliberation.

This point suggests a digression on the subject of original sin. He questions (without positively pronouncing against) the doctrine of the Master of the Sentences that original sin springs "from the pollution of the soul through the flesh corrupted by the sin of our first parents," as an apple is polluted by being thrown into the dirt. Bacon objects that, if the pollution arose from the mere union with the flesh, the pollution would belong to its substance, whereas all sin

[1] *I.e.* his *Dialectica*, which is not generally regarded as genuine.

must be supposed to have its seat in the will. If it is suggested that it arises "from the natural motion of the will in the mother's womb, when it is united to the flesh, before deliberation," the objection is that original sin is admittedly "mortal," and we should thus be compelled to say that a natural motion of the will might be mortal sin, and so, it would follow, must be all natural motions. Bacon leaves the question unanswered, and adjourns it to his "third treatise" He then returns to the question of deliberately imposed signs, such as words and "the mute signs of monks". All words fall within this class except interjections, which are uttered without "perfect deliberation".

Chapter II. deals with "the signification of words (*significata vocis*) in particular as regards four points": (1) whether a word signifies anything before imposition, (2) whether anything can be imposed upon itself, and signify itself, (3) in what way it is imposed on things without the mind, (4) what it (*i.e.* a sound so imposed) signifies.

The first problem amounts to this: Is the signification of words arbitrary? Bacon contends that it is. The first argument against his thesis is the suggestion that the uttered word has its "species," or, as a modern might say, the "idea" of the thing (according to the Thomist doctrine about the "intermediaries of sensation") in the mind of the speaker, and this "species" is its physical cause; hence it must be a sign of the idea, and belong to the class of "natural signs" since the effect is always a natural sign of the cause. It is not very clear how Bacon means to reply to this objection. He seems to admit the point as far as it goes, but to contend that, though considered as an effect the word is a natural sign of its cause, the cause is not the meaning of the word. He goes on to meet another objection. It is suggested that the proposition *buba est buba* may be safely made "before imposition," *i.e.* without settling what the really meaningless sound *buba* is to signify. If *buba* is a significant word, the thesis that words signify "before imposition" is established; if it is not significant, then this proposition, "*buba* is a non-significant word,"

is itself a significant proposition, and therefore all its parts must be significant. Consequently *buba* is significant before imposition. Bacon gives the obviously right reply: Such propositions as "*buba* is *buba*" are neither true nor false; indeed, they are not propositions at all, but meaningless aggregations of words (*congeries vocum*), until it has been settled what buba means, *e.g.* that it is to be used to mean the word *buba*.

The second problem, or *questio* (referred to in the text as the third), is whether a word can be imposed upon itself and so become significant. Bacon answers "yes" We can make judgements about "white" in the sense of the word "white" as well as about white in the sense of a white thing, and the opinion is supported by authorities. Thus St. Augustine tells us that we may say "Tullius is a dactyl," and Tullius does then signify something. (Bacon's reply to a subtle objection may be passed over.)

The third problem (here mistakenly described as the fourth but the subject is so treated as to answer the fourth also) relates to the signification of words when applied to things outside the mind. He maintains that the word signifies the external thing and nothing else. Here he is combating the theory which his opponents based on the Aristotelian doctrine that words were marks of passions in the soul—the theory that names represent the "species" of the thing in the soul—an opinion which recalls the view of Descartes, Locke, and a whole succession of later thinkers, that we know immediately only "ideas" which represent, but are not identical with, real things. Bacon contends (as Reid would have done) that when I talk about a house I mean the real house outside the mind, not my idea of a house—a "species" or "cognitive habit" in my mind. When, in particular cases, the word "house" is used to indicate the house in my mind, as when Aristotle says that the house in the mind is the cause of the house which the builder builds, the word "house" is used equivocally: there has been a "new imposition" of the word. The objector replies by appealing to St. Augustine's doctrine that the word "nothing" signifies an

affection of the mind. Bacon replies that "nothing" must from the point of view of the mind imposing the term be considered as sufficiently real and outside the mind (*sufficienter loco reali extra animam quantum ad intellectum imponentem*), or, as a modern might put it, that it is real from a logical, if not from a metaphysical, point of view; that it has its own reality in the world of our thoughts, if not in the world of physical things, while the negations in our thoughts do help to express the true nature of the reality outside us. He goes on to note the ambiguity of the statement that "nonentity" (*non-ens*) can only exist in "the conception and knowledge of the intellect". The statement may mean that it exists only in the intellect itself, as an accident in a subject, or it may mean that it is a "thing as it is actually conceived and considered". The statement, he held, is true in the latter sense, not in the former. The assertion is often made at the present day that all Idealism turns upon that ambiguity of the word "conception" which is here exposed by Bacon; the word may be used to mean either the act of conceiving or the thing conceived. The Idealist is accused of supposing that the things we conceive have no existence outside the mind because our conceptions of them clearly exist only in the mind. Bacon is not here explicitly arguing the metaphysical question of the independent existence of matter, but it is probable that he had some glimpses of the metaphysical problem which lies behind, and is closely connected with, the logical problem as to the "import of propositions," or "the nature of judgement," which he is discussing. Bacon would probably have taken the realistic side, and would, perhaps, have sympathized with the above not very intelligent representation of the Idealist's position.

Chapter III. is "on things connoted and co-intellected by the things on which names are imposed". Bacon proceeds to show that a name imposed upon a thing outside the mind can signify at the same time other things outside the mind: such things are said in Philosophy to be "co-intellected," and by the Theologians to be "connoted". Everything which follows from the thing "by natural and necessary consequence" is

said to be co-intellected or connoted by it ; as, when we say "creature," we imply the existence of a Creator ; and, when we say "Creator," we imply God. So an accident implies its subject ; "risible" implies "man" (since no other animal can laugh), etc. It is objected that such signification cannot be univocal, because a word cannot signify two things univocally ; nor can it be equivocal, for that would imply a "new imposition". The answer is that the last principle holds only of names imposed at pleasure (*ad placitum*), and has no application to cases where the same name signifies more than one thing "by actual concomitance". It is objected that, if Socrates implies a mind, it would follow that, because Socrates is an animal, we might say "Socrates' mind is an animal". Bacon replies by appealing to the old distinction between natural signs and signs by imposition : the connoted meanings cannot be substituted for the primary meaning without a new imposition of the term.

The question of connotation suggests a problem discussed by Aristotle and Averroes : does the name of an "aggregate" or concrete thing "signify" the formal cause of the aggregation (*i.e.* the meaning of the concrete term) or the constituent elements of the aggregation ; *e.g.* does the term "house" signify the shelter which enters into the definition of the term (*co-operimentum*), or the particular stones and wood of which the house is composed? Aristotle's answer is that it signifies both, but not in the same way. To Bacon this answer is too vague : he supplements it by saying that it signifies the aggregate "primarily and principally," and the form and matter secondarily or mediately (*mediante aggregato*). It signifies the aggregate by imposition : the matter and form naturally. This view is, however, opposed to that of Averroes, who makes such names signify the form primarily (*prius et dignius et principalius*), and the aggregate secondarily, on the ground that a name only signifies a thing, so far as it is actual (*in actu*), and the cause of actual existence in the composite or concrete thing is the form ; and, when two things (denoted by the same name) are related as cause and effect, the name belongs more properly

to the cause, as the name "heat" belongs more properly to fire than to hot things. This solution Bacon rejects with indignation, and regards as destructive of the philosophy of Aristotle. He proceeds to argue that a name signifies the thing on which it is imposed: when it is used to signify the form, it is used in a different sense (*nova impositione*) and equivocally. Thus, when I say "a man runs," this is not true of the form of man, *i.e.* the *anima rationalis*. This is so, so long as we are dealing with words as signs arbitrarily imposed: he admits, however, that, considered as a natural sign, the name of an aggregate does signify the form and the matter; *i.e.* the form and matter are not the meaning of the word, but we may infer the existence of both the form and the matter from the existence of the thing: when we say "a man runs," we do not mean "his rational soul runs"; but, if we know that it is a man who is running, we know that he must have a rational soul. Bacon denies that the name signifies the form "more worthily"; the form has not more "dignity" than the aggregate; on the contrary the aggregate has more dignity than the form, because it has more being, since it has the dignity and the being of matter as well as that dignity and being which belong to the form; and our knowledge begins with the aggregate and advances to the form and the matter. Other arguments follow, tending, as it were, to vindicate the dignity and importance of matter against the Averroistic exaltation of the form. "Matter," he declares, "is not a mere nothing, but a real nature and essence, having the being which belongs to its own essence; and so, when it enters into the essence of the composite" (i.e., the real particular thing made up of form and matter), "the essence of the composite and its being depend essentially upon the matter, although (it may be) more upon the form". He describes as a "vile sophism" the argument that the name of an aggregate must be considered primarily to belong to the form, because it belongs to it by virtue of its actuality (*secundum quod est in actu*), which is caused by the form; and that, when a name is applied to two things related as cause and effect, it is applied more properly (*magis*) to the

cause. This argument assumes that words are natural signs, instead of being arbitrarily imposed. The illustration of the word "heat" is not relevant, since heat has a meaning of its own before it is applied to a hot thing: in other words, heat is not a mere "form" like humanity, but a physical reality. The book concludes with an allusion to the fourfold meaning of words (allegorical, etc.) in Scripture, and a promise to deal with the subject in the third "tractatus".

In Chapter IV. there follows a discussion of two theses: (1) that a word cannot signify anything common to an "ens" and a "non-ens," and (2) that a word imposed on a thing can lose its significance (*cadere a sua significatione*). Both these are asserted by Bacon, and he traces the most appalling errors in Philosophy and Theology to the prevalent denial of them.

The first of them was held to be demolished by such propositions as "Cæsar dead is a man," "a dead man is an animal," "Christ in the three days before the Resurrection was a man". The great source of the fallacies which he proceeds to expose was the teaching of Richard of Cornwall, who was condemned at Paris for the errors maintained there during his course on the Sentences, after he had lectured on the Sentences at Oxford in 1250.[1] During the forty years that had elapsed between that year and the date of the present work these errors had been prevalent, especially at Oxford.

Bacon bases his refutation upon Aristotle's doctrine that nothing can be common to the past, the future, and the present. Since the past and the future have no real existence, this seems to Bacon to imply his doctrine that nothing can be asserted univocally, both of an "ens" and a "non-ens". The name Cæsar, when applied to the dead Cæsar, is used equi-

[1] As to the Franciscan Richard of Cornwall, see Little, *Grey Friars in Oxford*, pp. 142-3 and D.N.B. He seems to have escaped the notice of the historians of Philosophy. The Assisi MS. 176 mentioned by Mr. Little as containing a Commentary on the Sentences ascribed to Richard of Cornwall really contains, as he informs me, Bonaventura's Commentary on I. and II. Sent. The Assisi Catalogue of 1381 mentions two works by Richard on the Sentences, one beginning "Quia secundum Hugonem," the other "Cupientes. Totali libro": Alessandri, *Inventario*, pp. 104, 109. Both are missing.

vocally. The principle is supported by many appeals to acknowledged doctrines, *e.g.*, that nothing can be said of the Creator and of the creatnre in the same sense. Since the difference between an "ens" and a "non-ens" is even greater than that between the Creator and the creature, it follows *a fortiori* that no name can be applied in the same sense to an "ens" and a "non-ens". Names are always applied to an actual present thing. He then examines the various "cavillationes," by which the opponents seek to evade the conclusion. One of them is found in the doctrine that the name is applied to the "essence" of the thing, abstraction being made of all distinctions of time. This seems to Bacon fatuous, since men only impose names upon things present to their bodily senses, as for instance upon children at Baptism, and so they do not abstract either from present time or from actual being. Moreover, the word "essentia" implies actual being, being either identical with it or its proprium (*propria passio*); hence a past essence would not really be an essence at all, any more than potential being is really being. Moreover essence in composite things is constituted by the union of matter and form: hence, when matter and form are separated, as when Cæsar dies, the essence of Cæsar is gone, and the name which (according to the theory under examination) denotes the essence, is no longer applicable univocally to the dead Cæsar. Therefore they are mad who talk of the man or the essence "ceasing," when the soul (the form of man) is separated from the body. Bacon means that this would involve a contradiction in terms: if he "ceases," he is not a man; while, if he is still a man, he does not cease. Another cavil is to say that habit (*habituale esse*) is a term which can be applied to both being and not being (since a man is said to have a habit of doing what he has done and will do, as much as if he were actually doing it). Bacon appeals to Aristotle to show that habit belongs to the form; hence, when the form is gone, the habit is non-existent.

Passing over some additional arguments on both sides, we come to a "cavillatio," which Bacon seems to think worthy of

more serious attention. It is founded on Aristotle's doctrine that "a name signifies without time". The reply is that this is true as to signification, not as to reality (*quantum ad significandum, non quantum ad rem*). This means substantially that, though the name Cæsar may be applied both to the present and the past Cæsar, there is really a "new imposition" when it is applied to the latter; the name is used equivocally. In the same way infinite or privative predicates, like the term "not-just," may be applied alike to an existent or non-existent person: from the privative proposition, "the man is not-just" or "unjust," we may infer the negative proposition "the man is not just," but from "the man is not unjust," we cannot infer "the man is just," for the truth might be that the man is dead, and for that reason is neither just nor unjust. In such cases the name "man" is used equivocally. Then Bacon attempts to deal with the difficulty noticed by Aristotle as attaching to such propositions as "he is being made beautiful": this contains a contradiction, since what is being made beautiful is not really beautiful. The reader may before now have begun to suspect that Bacon has entered upon a line of thought which would end in the denial of the possibility of motion, according to the old sophistic contention that, if a thing moves, it must move either where it is or where it is not, and yet both assertions are absurd. Bacon himself now begins to feel the difficulty; if only the present exists, he asks, how can motion and time exist, when it is of their essence to be ever ceasing to be? He replies by drawing a distinction. There are two kinds of becoming (*fieri*). A thing may be said to be becoming (*in fieri*) when it tends to a future being—a future state which when reached will be permanent: in this case, it is implied, it can only be said to have the predicate expressing this state potentially, *e.g.*, when we say "this man is becoming, or being made, beautiful". The other kind of becoming is when the subject wants nothing but becoming to complete its being: that is the kind of becoming which is proper to time and motion, and such becoming is something actually present (*tale fieri non tollit esse debitum talibus rebus*). Bacon

seems to feel that the solution is not quite adequate, and promises to deal with it on another occasion. Meanwhile, from the whole discussion he concludes that it is not possible truly to assert "man is an animal" while no man exists.

The last remark is interesting, as it suggests the real identity between these difficulties of Roger Bacon and the modern controversies about the nature of predication. The position of Bacon's opponents reminds us of the modern contention that all universal propositions are really hypothetical. "Trespassers will be prosecuted" does not necessarily imply that any one is trespassing at this minute, or even that any one ever will trespass; it merely asserts a universal connexion between these two universals—trespassing and being prosecuted. The opponents of that doctrine would reply that normally the categorical judgement, "mastodons are animals," would imply the present existence of mastodons—in any case it would imply the past real existence of such animals. It is true that Bacon's problem is the meaning of terms, not of predication; but since he holds that a name always means a thing, the two controversies run into one another. I do not of course mean to suggest that those who maintain that categorical propositions affirm the real existence of the subject push the contention (with Bacon) to the absurd length of asserting that the real existence must be always existence at the present moment. I merely touch upon the matter to show that Bacon's difficulties are precisely the difficulties with which Logic is still endeavouring to grapple.

Chapter V. shows that "a word (*vox*) can fall from its signification". The argument starts from the two principles: (1) a word means nothing when there is no existing thing which it signifies (Boethius), and (2) when one of two correlatives is destroyed the other is destroyed, *e.g.*, when there is no son, there can be no father. The sign and the thing signified are correlatives: hence when the thing signified ceases to exist, the sign no longer means anything. Moreover, the meaning of names is arbitrary; they are imposed by us and can be changed by us. Thus obsolete forms such as "faxo" (for

"faciam") or "faxi" (for "feci") used to mean something, but now mean nothing. Or again a circle hung outside what was once a tavern meant that wine was to be had within; but when it is known that there is no wine within, no one takes it as a sign; it now signifies nothing. This shows that a word may lose its meaning. To this a "reasonable objection" is made: in such cases, it may be alleged, the sign may still have a meaning: it may signify that the thing did exist in the past. Bacon's reply is that the original meaning was, as always, some present and actual thing; and that meaning it has no longer. Another objection: there may be names of non-entities, *e.g.*, a vacuum or an infinite, or the word "nothing" itself. The answer is that, when the thing has ceased to exist and become nothing, there has been a "new imposition": the name receives a new meaning. The same holds when we say "Tullius is an orator" (meaning the dead Tullius) or "Tullius is in the Capitol" (meaning his statue), or "Tullius is a dactyl" (meaning the word Tullius). Again, it is alleged that the proposition "Cæsar is Cæsar" is one which can never lose its meaning. The reply is that, if there be no Cæsar in existence, the word means nothing at all, and is not a "vox significativa ad placitum". A further objection: "You have just said 'Cæsar signifies nothing'" where Cæsar must mean the same as it did before Cæsar's death; or, again, at the moment of a man's death, we may say "John is dead," in which case John means just what it meant when John was alive. Bacon replies that here also there has been a "new imposition" by the tacit consent of the bystanders, though they may be so much absorbed by grief as not to be conscious that they have changed the meaning of the word when they exclaimed "John is dead". The objector now returns to the case of the circle outside the tavern, and suggests that a casual traveller may be taken in by the circle outside the empty tavern. Bacon replies that even here there has been a "new imposition": the circle now stands for the imaginary wine in the traveller's mind. (Here Bacon will probably find no modern defenders: it is clear that he con-

fuses the meaning of a judgement in the mind of a person judging with the question of its objective truth.) He concludes with a diatribe against the "insanity" of the view which he has been refuting, due to the authority of its inventor (*i.e.*, presumably the aforesaid Richard of Cornwall).

Chapter VI. On the modes of equivocation and analogy.

Aristotle has often spoken on the subject, but he has never actually brought together all the modes of equivocation and analogy: Bacon will proceed to collect these from his writings.

There will be as many different kinds of equivocation as there are possible diversities of signification. He enumerates the following:—

(1) When there is absolutely no identity of meaning (*convenientia*) between the two things, as between "ens" and "non-ens"—a view which might be questioned by others besides Hegelians.

(2) When there is an absolute difference between the two things signified but some identity of meaning, as between the Creator and the creature. Here there is nothing absolutely common, but the creature may be compared to the Creator, and we see the "vestiges" and effects of the Creator in the creature. In this sense "being," "one," "good," "true," "substance," are equivocally applied to a substance and to an accident: so the term "healthy" may be applied formally to an animal, ostensively or indicatively to urine, effectively to medicine, conservatively to food. Other instances are given, and the principle is laid down that no term can be univocally applied to matter and to form, there being in fact no "perfect difference" among creatures except the difference between matter and form. All composite substances agree at least in having the "genus generalissimum" (*i.e.*, being) predicated of them; but being (it is implied) cannot be predicated in the same sense of matter and form. There cannot therefore be an absolute identity of meaning (*convenientia*) between them, but there may be a relative one, since each of them implies the other. This doctrine involves the position that no created substance is pure form or pure matter. This is one of the

most significant doctrines in this tractate; it is a direct attack upon the teaching of St. Thomas Aquinas, who held that angels were pure form. Bacon alludes to the great Theologian of the rival order as "one of the pretended authors (or authorities), famous though he be".

(3) The third kind of equivocation is when there is a lesser difference of meaning combined with some absolute identity or "convenience," although nothing absolutely common *a parte rei* is predicated of the two things. In this way "substance" may be predicated both of the form and of the matter and of the concrete thing (*compositum*).

(4) The fourth kind is where there is some greater absolute "convenience"—where the two things signified agree "in some radical nature," although that nature is "varied," *e.g.*, two things related to each other as the horse is related to the ass.

(5) The fifth kind is where the identity is still greater—when the things signified are the same, though the mode of their signification is different, *e.g.*, "*amans*" used as a noun ("*amans illius*") and "*amans*" used as participle ("*amans illum*").

(6) When the difference is the smallest possible, *i.e.*, of grammatical cases or other accidents, as in the following sophism where the word "*asini*" is taken as genitive singular in the minor premiss, and as plural in the major premiss and the conclusion: "*Quicumque sunt episcopi sunt sacerdotes, isti asini sunt episcopi: ergo isti asini sunt sacerdotes*".

There is no "proper" equivocation besides these, but there is an "improper" mode of equivocation, *i.e.*, when a word is used in a transferred or figurative sense, as when we speak of the meadow "smiling" or the corn-fields being "joyous".

Analogy is quickly disposed of. All the modes of equivocation are really modes of analogy, except the first. But there is one kind of analogy in which there is no equivocation, as when the word "ens" signifies accidental existence or when "one" (*unum*) is used in the sense of unity. The meaning is apparently that there is only an analogy between the meaning of "is" in "Socrates is" and "Socrates is hot". But it is

difficult to see how there can be said to be no equivocation in such a double use of the term; but I forbear to enter upon the well-known controversy as to the "existential import of categorical propositions". The passage is obscure, and further explanation is promised in the following chapters. But here the tractate, or the present "Distinction" of it, somewhat abruptly ends.

A few words may be added on to the general importance of the *opusculum*. Apart from the preliminary matter on the causes of error (which find a close parallel in the introduction to the *Opus majus* and in the *Metaphysica*) very little of the substance of the present treatise is to be found in Bacon's hitherto published writings; and, unlike these, it is almost entirely occupied with the discussion of points of scholastic Logic and Metaphysic, and not with contributions to Natural Science, or general reflections on the existing state of knowledge and the methods of pursuing it. M. Charles and others have pointed out that on the whole Bacon's originality and importance as a man of science and an "anticipator" of modern discoveries or inventions has been exaggerated, whereas his importance as a Schoolman has been too much overlooked. It has been shown that the germs of both the great later schools of Franciscan Philosophy—that of Duns Scotus and that of William of Occam—are to be found in Bacon's criticisms upon the dominant Thomist Philosophy. A perusal of the present treatise strongly confirms this view. I will point out some of the most important of the suggestions which bore fruit in the later Philosophy of Bacon's Order, which, it must be remembered, orginated for the most part in the Oxford convent. The Franciscan house at Oxford was the original home of all that was most important in the later medieval Scholasticism, and much of the tradition which was there handed down no doubt started with Bacon.[1]

(1) One of the most important points of difference between

[1] See Ehrle, *Beitrage z. Gesch. d. miltelalterlichen Scholastik* in *Archiv f. Kirchengesch. des Mittelalt.* V. p. 603 *sq.*; Rashdall, *Universities of the Middle Ages*, II., 526. *sq.*

the teaching of St. Thomas, on the one hand, and that of the early Franciscans such as Pecham and later of Duns Scotus on the other, relates to the question of the "plurality of forms". St. Thomas held that an individual of the human species had in him only one specific "form". Thus in man the "anima rationalis" was the only form; the one rational soul exercised the functions which in the lower animals are discharged by the "*anima sensitiva*" and those which in plants are performed by the instinctive soul. The Franciscans, on the other hand, held that each of the "souls" recognized by Aristotle—vegetative, sensitive, intellectual—(though Aristotle himself regarded them as only logically separable) existed in man, and each discharged a different function. The germs of this doctrine can perhaps be detected in Bacon's assertion that the "anima sensitiva facit et dat signa" not only in the lower animals but in those motions of children which "precede all deliberation". The child, according to Bacon (and therefore presumably the adult man) has a distinct sensitive soul as well as the rational soul.

(2) Another characteristic of Scotism closely connected with the above is its opposition to the Thomist doctrine that the "principium individuationis" is to be found in matter, *i.e.*, that what makes Socrates differ from Plato is the fact that one and the same form of man (*i.e.*, the *anima rationalis*) is stamped upon different pieces of matter. This was of course the doctrine of Aristotle. The Scotists, on the other hand, held that many forms might be present in the same individual, for the same individual might be at once man and animal, and living being, and possesses therefore a distinctive generic, as well as a specific "form". A logical extension of this doctrine maintained that even when you come to differences below those which constitute the "infima species," when you come to the difference between one individual and another, the difference is accounted for by an individual form called the "haecceitas" or "thisness" of the thing. The "principle of individuation" is therefore form, not matter. The doctrine has at least this much meaning that the difference between one individual and another is an intelligible

difference, while pure matter, according to Aristotle, is unknowable: it cannot, therefore, be matter in this sense (*materia prima*) which enables us to distinguish one individual from another individual of the same species. The difference between the two schools on this point had an important bearing on their Angelology. St. Thomas held that an angel was form without matter. This involved him in an obvious difficulty. If individuality came from matter, whence did an angel get his individuality? The difficulty was met by the ingenious doctrine that each angel differed from every other "specie": each angel was a species by itself, so that individual differences were not required. This view is violently attacked by Roger Bacon who indignantly denies that any being except God can be "pure form". The reason given is that "forma accidentalis requirit materiam subiectam, forma substantialis similiter". The germ of the "haecceitas" doctrine may possibly be detected in this reference to the "forma accidentalis," though the drift of the argument is not very clear. But whatever Bacon's reasons for the position, the Scotist opposition to the Thomist doctrine of angels is fully developed.

(3) It is a curious fact that the germs of the rival schools of the later Middle Ages—the thorough-going Realism of Scotus and the Nominalism of Occam—can both be detected in Bacon. We have noticed the germs of Scotism in the present treatise: the tendencies which culminated in Occam are still more evident. The doctrine that names signify primarily the concrete thing, not the "form," the doctrine that a name is always given to an actually present thing discernible by the senses, the indignant denial that the form is nobler than the matter—these views represent a tendency towards a nominalistic, commonsense, if not materialistic Philosophy—a Philosophy which found reality in the particular thing, not in the universal. So, too, Bacon's denial that the name signifies the "form" or universal or anything except the individual thing existing out of the mind paves the way for that drastic sweeping away of the intelligible and sensible species, intervening between the thing itself and the act of knowing it which is one of the most

characteristic features of the teaching of Occam. More generally, in the careful observations about the "signs" uttered by animals we may recognize traces of the attention to Psychology which was one of the best features of Occam and his school.

(4) In spite of the strong opposition between the Scotist Realism and the Occamist Nominalism, there were (as might be expected from their common origin) many features which they possessed in common—especially in their Theology as distinct from their Philosophy. One of these is the disposition to emphasize the freedom of the Will as against the slightly veiled Determinism of St. Thomas, and to minimize the idea of original sin. The beginnings of this tendency are plainly visible in the present treatise—in the difficulty which its author finds in the doctrine that a "natural motion" can be a mortal sin, and his strong insistence that sin can only arise from "a motion of the free will". It is true that he gives no positive solution of the problem, but the drift of his mind is obvious. His greater caution on this point may be due to the fact that here he was really attacking not merely St. Thomas but St. Augustine and the hitherto accepted Theology of the Western Church in general.

(5) For many students of Bacon the chief interest of this tractate will lie in the historical notices which it contains about the history of Philosophy in his time—particularly in Oxford—the statements about the influence of Richard of Cornwall, the dates at which various Aristotelian treatises became known, and the like. As the most conspicuous of these have been already quoted in this Introduction, no more need be said on the matter, but it may be well to add a word of caution. What we know from other sources makes it certain that there must be considerable exaggeration in the statement that "almost nothing is known of the Philosophy of Aristotle". What we know of the books read in Paris in the middle of the thirteenth century shows that he must have exaggerated the number of genuine Aristotelian treatises which were untranslated in 1292.[1] It may be suspected that the statement about so little being

[1] Rashdall, *Universities of Europe in the Middle Ages*, I. pp. 358-61, 435-6.

known of Aristotle arose partly from his antagonism to the dominant Thomist school of Aristotelian interpretation, and partly to his greatly exaggerated view of the untrustworthiness of the existing translations. Bacon was no doubt somewhat inordinately proud of the little Greek which he knew, and found it convenient to pretend that what he objected to in the current Scholasticism could not really lay claim to the great authority of Aristotle.[1]

I have endeavoured as far as possible to give references to the places in Aristotle and other authors quoted by Bacon.[2] This has been a task of no small difficulty, since Bacon gives very vague references, some of which are certainly wrong. Sometimes he seems to be writing from very hazy recollections of Aristotelian doctrine rather than with a particular passage before his mind.

My warmest thanks are due to Mr. A. G. Little, the editor of the series, who has compared my text throughout with the MS. and has given me a great deal of most valuable assistance.[3]

[1] The statement about Aristotle having written 1000 volumes (below, p. 33), is repeated in *Compendium Studii Phil.* (ed. Brewer, p. 473), where he adds that he had seen fifty books of his "de Animalibus". It is clear that he must have attributed to Aristotle some books which were not his.

[2] When the Latin version is printed in the works of St. Thomas Aquinas, I have added a reference to the "Lectura".

[3] The explanation given of connotation (see below p. 46) is of some importance for the history of that term. It will be obviously out of place to attempt a discussion of the subject here.

H. Rashdall.

ROGERI BACON

Compendium Studii Theologie [f. 78].

Incipit Compendium studii Theologie et per consequens Philosophie, et potest et debet seruire Theologice facultati, et habet duas partes principales. Prima [circa] liberalem communicationem sapientie investigat omnes causas errorum, et modos errandi in hoc studio, vt vere cause et veri modi appareant evidenter. Secunda pars descendit ad veritates ipsas stabiliendas, et ad errores cum diligentia excludendos.[1]

[Pars I.]

[Prologus] Quoniam autem in omnibus causis autoritas digna potest et debet valere plurimum, vt ait Tullius primo libro de questionibus Tusculanis[2] atque Plinius in prologo naturalis philosophie dicit: "Benignum arbitror et ingenui pudoris fateri per quos profeceris," propter quod primum librum sui voluminis constituit de nominibus auctorum quorum sententiis vtitur in omnibus aliis libris xxxvi. Ideo saltem huius operis primordia et insuper, ubicumque iustum fuerit, volo dignis autoritatibus confirmare. Et quoniam principalis occupacio theologorum istius temporis est circa questiones, et maior pars omnium questionum est in terminis Philosophie cum tota disputacione, et reliqua pars que est in terminis Theologie adhuc ventilatur per autoritates et argumenta et soluciones philosophie, vt notum est omnibus sufficienter literatis: ideo, vt conformem me, aliis autoritatibus et racionibus

[1] This clause and all the clauses below printed in italics are rubrics.

[2] *Disp. Tusc.* i. 12 (not exact). Pliny's Preface merely acknowledges his indebtedness to various "auctores".

philosophicis vti cupio habundanter, et varia introducam; quia "nichil est iocundum nisi quod reficit varietas,"[1] vt ait Seneca libro de copia verborum, quia ydemptitas generat fastidium et mater satietatis ab omnibus comprobatur. Etiam causa specialis me mouet, vt excitem lectorem ad querendum libros autorum dignos, in quibus magna pulcritudo et dignitas sapientie reperitur, qui nunc temporis sicut a multitudine studentium, sic a doctoribus eius quasi penitus ignorantur.

Hec autem pars prima siue libellus primus habet capitula. . . .

CAP. I.—*Primum est de communicacione sapiencie liberali.*

Sepe igitur et multum requisitus et diu exspectatus vt scriberem aliqua vtilia theologie, inpeditus tamen multipliciter vt notum est multis, insuper conscius superflue difficultatis que non potest excludi audiendo et legendo, sed requiritur multitudo experiencie[2] et longi temporis examinacio diligens, tandem fauens amicis, quantum efficacius potui festinaui, considerans illud sapientis Salomonis "spes que differtur affligit[3] animam": sicut secundum Terentium nil grauius torquet quam spes destituta; et Ouidius ait "spes anxia mentem Distrahit, et longo consumit gaudia voto".[4] Seneca etiam septimo libro de beneficiis ait, "gratius venit quod de facili, quam quod de plena manu, sumitur";[5] et in eodem dicit "ingratum est beneficium quod diu inter manus dantis hesit".[6] Et adhuc dicit, "Cum roganti suffundatur rubor, qui hoc remittit, multiplicat munus suum":[7] quia vt in eodem

[1] The *De Copia Verborum* is the "Sententiæ" attributed to Seneca till the time of Erasmus, now recognised as the work of Publilius Syrus, where the passage occurs in line 270 ("Jucundum nil est," etc., ed. Bickford-Smith, p. 17: R. 'reficitur'). The *De Copia Verborum* is the work which Seneca, in the forged letter, sends to the Apostle for the improvement of his Latinity (Ep. 9 ad Paulum). Cf. Alanus de Insulis, *De Planctu Naturæ* (Migne, *Patr. Lat.*, t. 210, p. 459).

[2] R. experiencia.

[3] R. afirigit; Prov. xiii. 12.

[4] This passage is from the Pseudo-Ovidian poem "Vetula": see Introduction, p. 2. But it appears to have been stolen by the writer from Statius, *Theb.* i., 322, where the ordinary reading is, however, 'Extrahit,' not 'Distrahit'. See Brewer's note on Bacon's *Opus Tertium*, p. 12.

[5] *De Beneficiis*, i. 7. For "sumitur" the ordinary text has "datur" and omits "de".

[6] *De Beneficiis*, ii. 1.

[7] *Ibid.* (curtailed).

ait, "nulla res gravius constat quam que precibus empta est".[1] Et Salustius[2] secundum Jeronimum autor certissimus dicit in Jugurtino "animo cupienti nichil satis festinatur": quam sentenciam Seneca libro de copia verborum continuat, dicens, "Ipsa etiam celeritas desiderio mora est".[3] Sed, licet secundum has sentencias et consimiles ad omnia beneficia debemus esse prompti secundum possibilitatem nostram, tamen promptissimi debemus esse ad beneficia sapiencie talia communicanda si possumus, quia excedit omnia alia: et facillime possumus hoc adimplere, et secundum quod ait Jeronymus in epistola de correctione Psalterii,[4] "In hoc beneficio, quanto[5] plus soluimus, plus debemus"; propter quod in libro sapiencie dicit autor "quam sine fictione didici, et sine invidia communico, et honestatem illius non abscondo".[6] Alexander quidem, magnus Aristotelis discipulus, requirens Dimidum (?)[7] regem Bragmanarum de communicacione sapiencie ait: "Libera res est communitas sapiencie, et nesciens pati dispendium cum in alterum participata transfunditur; sicud ex vna luce si lumina plura succenderis, nullum dampnum principali materie generabis, que quidem accipit facultatem plus lucendi, quotiens causas invenit plus prestandi."[8] Insuper tante dignitatis est sapiencia, vt non communicata pereat, et in auaro defficit possessore. Et Seneca libro primarum Epistolarum sexta dicit epistola: "Gaudeo aliquid discere vt doceam;[9] nec me vlla res delectabit, licet[10] sit eximia et salutaris, quam mihi vni sciturus sum. Si enim quod cum hac excepcione detur mihi sapiencia, vt illam inclusam teneam, nec enuntiem, reiiciam: nullius enim boni sine socio iocunda est possessio". Et

[1] *De Beneficiis.* For "gravius" Seneca has "carius". [2] Jugurth. lxiv. 6.

[3] R. sceleritas. Pub. Syr., *Sent.*, *l.c.*, 173, p. 11 (no 'ipsa').

[4] There is a spurious letter of Jerome to Damasus, *de Emendatione Psalterii*, printed in Migne's Edition, vol. xxx., Ep. 47, c. 294, but it does not contain these words.

[5] R. quanta. [6] Sap. vii. 13.

[7] Cf. *Opus Tert.*, p. 12. The same passage is quoted in the fragment of Bacon published by Abbot Gasquet in *Eng. Hist. Review*, vol. xii., p. 500, where the King's name is Dindemus.

[8] Cf. *Metaphys. R. Bacon*, ed. Steele, p. 2.

[9] *Epp.* i. 6. R reads "gaude addicere". [10] R. set.

Boecius in prologo libri de hypoteticis syllogismis[1] ait: "Nullum quidem bonum est quod non pulcrius elucescit, si plurimorum noticia comprobetur." Sapiencia enim abscondita, et thesaurus invisus, que est vtilitas in vtrisque,[2] quod dicit Salamon, nulla penitus invenitur.

CAP. II.—*Capitulum secundum de causis generalibus humanorum errorum.*

Set nisi cause generales et speciales humane ignorantie et erroris euacuentur, persuasio vana est. Primo igitur, de malicia et infectione venenosa causarum generalium loquens, dico quod tria sunt vidende veritatis offendicula: fragilis et indigne autoritatis exempla, consuetudinis diuturnitas, sensus multitudinis inperite. Primum inducit in errorem, secundum ligat, tertium confirmat; de quorum trium reprobacione, etsi omnes sapientes consentiant, Seneca tamen libro secundarum Epistolarum prope finem colligit hec tria, scilicet egregia autoritate condempnans. Dicit igitur, "Inter causas malorum nostrorum est, quod viuimus ad exempla; nec racione conponimur, set consuetudine adducimur; quod, si pauci facerent, nollemus imitari; cum plures facere ceperint, quia frequencius, quasi honestius id facimus; et sic apud nos recti locum tenet error ubi publicus factus est".[3] Consimilem sentenciam ponit Marcus Tullius in prologo tertii libri Tusculanarum questionum dicens, "Simul atque postquam editi in lucem susceptique sumus, in omni continuo prauitate, et summa opinionis peruersitate versamur, vt pene a lacte nutricis errorem suxisse videamur: cum vero parentibus traditi et magistris redditi sumus, tunc ita variis imbuimur erroribus, vt vanitati veritas et opinioni confirmate ipsa natura cedat".[4] Accedunt etiam poete [qui] addiscuntur leguntur et mentibus nostris longa consuetudine inherescunt. Cumque accedunt, quasi quidem

[1] *De Hyp. Syll.* i. (Migne, vol. 64, c. 831). [2] Ecclus. xli. 17.

[3] *Epp.* xx. 123. "Adducimur" should be "abducimur" and there are other variations.

[4] *Tusc. Disp.* iii. 1, § 2. I have corrected some mere blunders of transcription. The usual text reads "parentibus redditi et magistris traditi," omits 'postquam,' and has other trifling variations.

magister, populus et omnis vndique ad vicia consentiens multitudo, tunc plane tanta opinionum inficimur prauitate, et a natura discedimus, vt nobis inuidisse videatur. Quanta vero discrecione examinanda est autoritas, Aristoteles primo Ethice testatur dicens, "Duobus existentibus amicis Platone et veritate, magis consentiendum est veritati quam amicitie Platonis".[1] Et secunda translacio dicit, "Duobus existentibus amicis sanctum est honorare veritatem". Similiter in vita Aristotelis legitur Plato dixisse, "Amicus est Socrates set magis amica veritas." Eciam idem dixit Aristoteles de Platone, sicut scribitur in eadem. Set pauci uolunt examinare dicta suorum magistrorum, quod reprobat Boetius libro de disciplina Scholarium dicens, "Miserrimi ingenii est semper inventis vti, et nunquam inveniendis, stultiusque est ma[f. 78, *b*]gistratus oracionibus confidere omnino; sed primo credendum est [donec videatur] quid senciat, postea fingendum est eundem in dicendo errasse, ut sic reperire queat quid commisse [objiciat] sedulitati".[2] Tullius eciam in Ortensio tales reprobat euidenter, dicens, "Multi primum tenentur astricti opinionibus, antequam quid verum sit iudicare potuerunt, obsecuti amico cuidam, aut alicuius quem audierunt oracione capti, de rebus incognitis iudicant; et ad quamcumque disciplinam quasi tempestate delati, tamquam ad saxum inherescunt".[3] Consuetudinem vero causam magnorum errorum et periculosam ostendit

[1] *Eth. Nic.* i. 4, p. 1096, *a*, 14-16 (Lect. vi.). The text of the ordinary "Antiqua Translatio" is "videbitur autem utique melius esse forsitan et oportere et pro salute veritatis et familiaria destruere . . . Ambobus enim existentibus amicis sanctam prehonorari veritatem". ('Sanctam' should of course be 'sanctum'.) The first translation of which Bacon speaks is doubtless that made by (or under the direction of) Robert Grosseteste, Bishop of Lincoln. The 'secunda translatio' is the revised translation (severely condemned by Roger Bacon, *Opp. Ined.* ed. Brewer, pp. 471-72) made by Gulielmus de Moerbeka, used by Thomas Aquinas and printed with his Commentary. See Jourdain, *Recherches critiques sur les anciennes traductions latines d'Aristote*, Paris 1843, p. 59 *sq.* p. 67 *sq.*

[2] [Pseudo-]Boethius, *De Disc. Schol.* cap. 5. I have inserted the bracketed words from Migne's text. Migne reads "docendo" for "dicendo".

[3] The passage, as Dr. J. S. Reid kindly informs me, is really from Academica II, § 8 (not exact), a work often in the Middle Ages confused with the Hortensius or De Philosophia. R inserts 'quod' before 'quamcumque' and reads 'sexum' for 'saxum'.

Ieremias propheta, dicens, "Numquid potest Ethiops mutare pellem suam, aut pardus varietatem suam: sic non potest homo benefacere cum dedicerit male".[1] Et Salamon, "Adolescens iuxta viam suam, cum senuerit non recedet ab ea".[2] Et Salustius ait in [Iugurtino] "Ubi adolescenciam habuerunt, ibi senectutem agunt".[3] Et propter hoc dicit Aristoteles secundo Ethice "Non parvum differt sic vel sic assuesci a iuventute,"[4] quia decimo Ethice dicit "Non enim possibile est vel non facile que ex antiquo consuetudinibus comprehensa sermone transmutare".[5] Et alia translacio planius dicit "Inpossibile enim aut non facile mutare per sermonem eum, qui iam induratus est moribus antiquis tempore longo"; propter quod adiungit quod iuvenes consueti ad errores non possunt castigari, nisi per penas a legibus constitutas. Aristoteles eciam primo Metaphysicorum asserit consuetudinem esse causam errorum, dicens "Tu potes videre quanta mala facit consuetudo in ciuitatibus, nam apologi et fabule magis recipiuntur quam veritates".[6] Et ideo Tullius primo libro questionum dicit "Magni animi est cogitacionem a consuetudine reducere".[7] Horum autem omnium que per consuetudinem inducuntur causa est quod consuetudo est altera natura secundum Aristotelem libro de memoria et reminiscentia.[8] Hoc enim alterat naturam: et primo generat naturam corruptam, quia Ypocras dicit "Sub molli culcitra iacere non consuetis fatigat naturam," et postea "Placet nature quando continuata est, vt quilibet experitur in se multis

[1] Jer. xiii. 23. [2] Prov. xxii. 6 ('etiam' omitted after 'suam').

[3] *Jug.* 85, § 41.

[4] *Eth. Nic.* ii. 1, p. 1103, *b*, 24-5 (Lect. i. *ad fin*). The printed text has "sic vel sic ex iuuene confestim assuesci".

[5] *Ibid.* x. 10, p. 1179, *b*, 17 (Lect. 14). The words are quoted exactly as they stand in the "Antiqua Translatio" used by St. Thomas, except that R. reads 'non impossibile est' for 'non enim possibile'. It is possible that 'alia translatio' should be 'antiqua'. See above, p. 29, note 1.

[6] *Met.* A, ἔλαττον (i.e. the Medieval Bk. II. Lect. 5), 3, p. 995 *a* 3-6 (a free paraphrase).

[7] "Magni autem est ingenii . . . cogitationem ab consuetudine abducere." *Disp. Tusc.* i., 16.

[8] *De Mem. et Rem.* 2, p. 452, *a*, 27 (Lect. 6). "Tanquam enim natura iam consuetudo est."

modis". Sensum vero multitudinis et testimonium multorum Aristoteles[1] ponit primo metaphysicorum causam nostrorum [errorum] ubi (?) dicit Commentator quia opposita principiorum cum fuerint famosa magis recipiuntur quam ipsa principia. Propter quod Sanctus Iohannes Chrysostomus super Mattheum dicit: "A veritate se nudos esse professi sunt, qui in multitudine se armauerunt. Multi vero sunt vocati ad veritatem Dei, pauci vero electi". Secundum quod Plato dixit in Timeo, "Intellectus paucorum est".[2] Tullius eciam prologo libri secundarum questionum egregie loquitur, dicens "Philosophia paucis est contenta iudicibus, multitudinem ipsam consulto fugiens, quia ipsi suspecta[3] et invisa"; et in ipso libro secundarum quemlibet alloquitur dicens, "Te autem, etsi sis in oculis multitudinis, tamen eius iudicio stare nolim, nec quod ipsa putet idem putare pulcherrimum,"[4] et paulo post "Quoniam etiam laudabiliora videntur omnia, que sine populo teste fiunt".[5] Et Seneca libro[6] de vita beata dicit, "Nulla res[7] nos maioribus malis inplicat, quam quod ad rumorem conponimur, optima rati que magno assensu recepta sunt":[8] et post pauca, "Non ita bene cum rebus humanis agitur, vt meliora pluribus prepateant";[9] et ideo concludit dicens, "Queramus ergo quod optime factum[10] est, et non [quod] usitatissimum, non quod vulgo interpreti veritatis pessimo probatum sit"; et ideo dicit sacer textus; "Noli sequi turbam ad faciendum malum,"[11] quasi eius proprium sit, vel quod de facili[12] inclinatur. Cum igitur hee sentencie sanctorum et aliorum sapientum insuper alie innumerabiles reprobant has tres causas errorum humanorum, nequeo satis admirari quod omnes faciunt

[1] The passage intended would seem to be *Met.* I, 3, p. 983, *b*, 3 *sq.* (Lect. 4). It would seem that Bacon's "opposita" should be "apparentia". Averroes was of course in the Middle Ages habitually referred to as the "Commentator".

[2] Καὶ τοῦ μὲν πάντα ἄνδρα μετέχειν φατέον, νοῦ δὲ θεοὺς, ἀνθρώπων δὲ γένος βραχύ τι. Tim. p. 52.

[3] So O.: R. has "suscepta". "Ipsam" should be "ipsa". *Tusc. Disp.* ii. 1.

[4] *Disp. Tusc.* ii. 26.

[5] *Ibid.*

[6] R. libre.

[7] "Nulla res" repeated in R.

[8] *De Vita Beata*, cap. 1.

[9] *Ibid.* cap. 2. The usual text has 'placeant'.

[10] The usual text of Seneca has "factu".

[11] Ex. xxiii. 2.

[12] Possibly we should read "de recta via" (or 'de virtute') "facile".

hec tria argumenta pessima ad eandem conclusionem, "Hoc exemplificatum est," "Hoc consuetum est," "Hoc vulgatum est, ergo tenendum est": cum in pluribus oppositum conclusionis potest stare cum premissis, et directe sequitur ex eisdem. Quod per experienciam quilibet potest probare in se et in aliis euidenter: omnes enim scimus a puericia vsque in finem vite, quod a parentibus et a magistris et sociis et aliis pro vno exemplo bono et veraci ac perfecto recipimus quasi infinita exempla inperfecta, falsa, et vana, inferentia nobis ineffabilia damna tam in studio quam in vita. Et iterum nouimus omnes quod que ab ineunte[1] etate traximus in consuetudinem facilius retinemus, et libentius mala et falsa et vana: et in pluribus bona et vera et vtilia negligentes. Scimus eciam quod multitudo humani generis semper errauit tam in philosophia quam in sapientia diuina. Nam de diuina patet, quod pauci homines respectu totius multitudinis mundi receperunt legem Dei, vt patriarche, prophete, et alii iusti eciam, ita vt non solum multitudo totius generis humani rebellis fuerit[2] legi diuine, sed wlgus Judeorum quibus lex data fuit repugnabat Deo, sicud sacra scriptura multipliciter contestatur. Et cum per predicationem apostolica ecclesia congregata est, pauci remanserunt in fide vera, et adhuc pauci sunt respectu multitudinis mundi, scilicet illi qui Romane ecclesie sunt subiecti; tota reliqua multitudo errat[3] ut pagani, ydolatri, Iudei, Sarazeni, Tartari, heretici, scismatici, respectu quorum cultores veri Christiane fidei sunt valde pauci: et, si isti diuidantur in paucitatem et multitudinem, multitudo, licet[4] fidem habeat, tamen informis[5] est, et sine rectis operibus mortua secundum sanctum Iacobum[6] comprobatur. Pauci enim probant fidem suam in viuendo: quasi multitudo Christianorum, licet confiteantur se nosse Deum, factis tamen negant, vt ait Apostolus; et hoc videmus occulta fide. Et si illos qui fide et operibus dignis vigent dividamus in multos et paucos, ipsa multitudo est nimis inperfecta, et viam perfectionis paucissimi apprehendunt. Similiter possumus videre in philosophia. Nam

[1] R. ineunta est. [2] R. fuit. [3] R. erat.
[4] R. set. [5] R. informi. [6] Ep. Jac. ii., 17.

testante Iosepho in antiquitatibus et Aristotele in libro Secretorum,[1] Deus a principio et lapsu temporis paucis dedit veritatem philosophie, scilicet aliquibus patriarchis et prophetis et quibusdam aliis Ebreis iustis, antequam Latini et Greci et alie nationes habuerunt philosophie principium; post quos, vt ait Aristoteles, secuti sunt viri qui vocati sunt philosophi, qui ab Hebreis receperunt principia scienciarum et arcium, ac maxime Greci, quia "magis fuimus studiosi," connumerans cum aliis semetipsum: set isti fuerunt paucissimi respectu totius humani generis: et, si istos[2] diuidamus in multitudinem et paucitatem, soli Parypathetici Aristoteli consentientes remanserunt in veritate philosophie, quia Putagoricos et Platonicos et Stoicos invenit errantes, et omnes sectas philosophantium, et euacuauit errores, et mille volumina scienciarum conscripsit, vt legitur in vita sua. Et Aristoteles, vt ait Tullius in topicis, "Admodum, id est valde, paucis, notus fuit."[3] Nam secundum ipsum Tullium quinto de questionibus Tusculanis et quinto Academicorum libro quindecim successores eius reliquit,[4] et cum illis petiit exilium vt iret in perpetuas peregrinaciones, nunquam ad propria reuersurus, quatinus cum illis paucis vacaret sapientie; quia hec vita magis est similis vite Dei et angelorum. Vitauit igitur[5] multitudinem, et cum paucissimis philosophatus est, sciens multitudinem ineptam [f. 79] sapientie, vt in presentibus efficaciter est ostensum. Tarde vero venit aliquid de philosophia Aristotelis in usum latinorum, quia naturalis philosophia eius et methaphysica et commentaria Auerroys et aliorum similiter hiis temporibus nostris translata sunt: et Parisius excommunicabantur ante annum Domini 1237 propter eternitatem mundi et temporis, et propter librum de diuinacione sompniorum, qui est tertius de sompno et vigilia et propter multa alia erronee translata.[6]

[1] There is a passage very vaguely resembling this quotation in the section of the Secreta Secretorum, "de conservatione sanitatis" (Paris, 1520, f. xvii.). The passage in Josephus alluded to seems to be *Contra Apionem*, also called *de Antiquitate Judæorum*, ii., 16 *sq.*
[2] R. istis.
[3] *Top.*, i. 3.
[4] R. reliquid, *Dis. Tusc.*, v. 107 (misunderstood).
[5] R. inserts Dei.
[6] The reading of the physical and metaphysical books of Aristotle was forbidden in 1215, and the prohibition renewed in 1231 with the reservation "until

Etiam logicalia fuerunt tarde recepta et lecta. Nam Beatus Edmundus Cantuarie[nsis] Archiepiscopus primus legit Oxonie librum elencorum temporibus meis: et vidi magistrum Hugonem, qui primo legit librum posteriorum, et verbum[1] eius conspexi. Pauci igitur fuerunt, qui digni habiti sunt in philosophia predicta Aristotelis, respectu multitudinis latinorum, immo paucissimi, et fere nulli vsque in hunc annum Domini 1292^{m}, quod in sequentibus capitulis copiosissime et euidentissime patefiet. Et tardius communicata est Ethica Aristotelis et nuper lecta a magistris et raro: atque tota philosophia reliqua Aristotelis in mille voluminibus in quibus omnes scientias tractauit nondum translata est, nec communicata Latinis; et ideo fere nihil dignum de philosophia Aristotelis scitur; et vsque nunc fuerunt tres, qui de illis paucis que translata sunt potuerunt iudicare veraciter; sicut statim multis modis efficacibus probabitur diligenter.

[Pars II.]

Prologus. *Incipit prologus de Compendio studii Theologice facultatis* [*secundi libri.*][2] Determinata parte prima huius compendii de studio Theologie in qua investigaui omnes causas errorum et modos errandi tam in substancia studii quam in modo, vt stabiliantur cause veraces et modi ueri, nunc sequitur pars secunda in qua volo descendere ad ipsas veritates certificandas, et ad errores vacuandos in particulari et in propria disciplina.

Quamvis autem principalis occupacio studii theologorum deberet esse circa textum sacrum sciendum est, ut probatum est multipliciter in priori parte, tamen a quinquaginta annis theologi principaliter occupati sunt circa questiones, quod patet omnibus per tractatus et summas, et honera equorum a multis composita, non sic[3] circa sacratissimum textum Dei:

they shall have been examined and purged from all heresy," but not long afterwards the principal Aristotelian treatises were freely lectured on at Paris. If 1237 is not a mistake for 1231, it would seem that we have here the date (hitherto not fixed) at which the prohibition ceased. See Rashdall, *Universities of Europe in the Middle Ages*, i., p. 357 *sq*.

[1] I conjecture "librum". [2] Added in margin by the same hand.

[3] The original text was perhaps "sicut oportet".

propter quod proniores sunt theologi ad recipiendum tractatum de questionibus, quam de textu. Et ideo volo deseruire eis, primo in his que magis diligunt; quoniam prima pars prudentie est, eius cui loqueris estimare personam. Set Palladius libro de Agricultura asserit eleganter:[1] "Ceterum maior profunditas sapientie et magnificentia sine conparacione, et ideo maior difficultas, est exponere textum quam in questionibus": et secundum Aristotelem nata est nobis via cognoscendi a facilioribus ad difficiliora, et ab humanis ad diuina: humana dico, quia maior pars questionum in studio theologorum cum tota disputacione et modis soluendi est[2] in terminis philosophie, vt notum est omnibus theologis qui exercitati fuerunt ad plenum in philosophicis, antequam veniebant ad theologiam. Et alia pars questionum in vsu theologorum que est in terminis theologie, vt de Beata Trinitate et lapsu primorum parentum, et de gloriosa Incarnatione, et de peccatis, et virtutibus, et donis, et sacramentis et de desideriis[3] et pena, ventilatur principaliter per autoritates et raciones et soluciones tractas ex philosophicis consideracionibus: et ideo quasi tota occupacio questionum[4] theologorum est iam philosophica tam in substancia quam in modo. Propositum igitur meum est tradere omnia philosophica speculatiua que sunt in vsu theologorum, et multa que necessaria sunt eis, quorum vsum non habent, et certificare omnia per ordinem a primis ad ultima; et tunc[5] que pertinent ad vnam materiam exponere in suo loco, vt, cum quasi infinicies pre multitudine questionum vna et eadem res requiratur, secundum consideracionum diuersitatem et contradictionum[6] eius exquiram omnia que sunt in vno loco; vt quod infinitis questionibus variatur vno loco istius libri reperiatur: verbi gracia, cum in tota disputacione reali requiratur ratio terminorum et propositionum et argumentorum, hoc suo loco reperietur quicquid in tota rerum disputacione exigitur. Similiter, cum racio specierum et virtutum, que fiunt ab agentibus in hoc mundo, requiratur,

[1] R. elegatum. I cannot find the passage, which looks as if it came from a commentary.

[2] R. et.

[3] R. desideria.

[4] R. gōn. I suspect that Bacon wrote, "hodiernorum" or "modernorum".

[5] R. inserts "aut" after "tunc".

[6] R. condiccionum.

siue fiat mencio de actione diuina siue angelica, siue celestium in inferiora siue inferiorum ad invicem, siue fiat actio in sensum siue in intellectum, et universaliter de tota cognicione cognoscentium et Dei et angelorum et intellectus humani et sensus, hoc in parte determinata huius libri invenietur quod in locis dispargitur infinitis. Et intelligendum est de omnibus in hunc modum. Melius enim est simul in vno loco omnia reperire, quam per innumerabilia diuerticula partes minimas et singulas perscrutari. Quoniam vero tota difficultas disputacionis circa reales veritates dependet ex terminis et oracionibus et argumentis, et summa prolixitas et maximi errores hic multiplicantur, et vanitates innumerabiles et indigne theologicis occupacionibus, ex quibus per totum corpus realium questionum accidit corrupcio infinita, prima distinctio huius tractatus circa questiones demonstrabit [1] quid verum, quid falsum, quid dignum vel indignum, quid vanum, quid vtile fuerit iudicandum. Hic autem requiritur potestas metaphysice vsque ad undecimum librum de substantiis separatis, et logice, quia Aristoteles dicit "de eisdem est metaphysica et dyalectica, set differunt in regimine vite"; [2] hoc est secundum Auicennam primo methaphysice in modo non in re,[3] quantum ad substanciam consideracionis utrobique. Nam [4] qui bene scit metaphysicam videbit quod primus liber docet invencionem scienciarum via sensus, memorie, et experiencie; quam logica in fine libri posteriorum docet, et in principio illius libri posteriorum et in secundo multa tanguntur de origine sciencie, et in aliis libris logice hec metaphysice consortia [5] satis patent. Secundus liber metaphysice continet fundamenta magna logice in diuersis locis, de quibus postea fiet mentio. Tertius liber est totus logicus, sicut liber topicorum, quia in illis disputat per argumenta dialectica positiones philosophorum. Quartus liber communicat valde cum logica propter diuisionem entis et vnius, et propter declaracionem huiusmodi principiorum logice "de quolibet affirmacio vel negacio et de nullo ambo".

[1] R. demonstrabitur. [2] *Met.* iii. 2, p. 1004, *b*, 22-5 very free (iv. Lect. 4).

[3] A very loose representation of Avicenna, *Met.* i., cap. 2.

[4] R. reads "falsam" for "nam". [5] R. hc me consoria.

Quintus liber totus est logicalis, quia ibi distinguuntur vocabula, vt de modis per se, et aliis que sunt communia logice et metaphysice. Sextus liber est de vero et falso, et de veritate proposicionum de futuro, et de ente per accidens, que sunt logicalia. Septimus et octauus sunt principaliter de diffinicione, de qua docetur sexto topicorum et libro posteriorum. Nonus liber est de potencia passiua et actiua, et de potencia racionali et irracionali, de quibus docetur fine libri peryermenias. Decimus explicat diuisionem entis et vnius, et quatuor genera opposicionum, de quibus in predicamentis docetur. Hoc ideo dixi ut aduertatur quod metaphysica in decem libris eadem tractat secundum Aristotelem et Auicennam in substantia que logica, licet in modo differat. Et licet Aristoteles in secundo et septimo, et alibi aliqua tangat de principiis et causis rerum et scientiarum, tamen hoc facit per argumenta dialectica, quod dialectica ad omnium methodorum (*sic*) viam habet, vt Aristoteles[1] dicit in topicis. Quoniam vero breuitati quantum possibile est semper insistendum est, docente Oracio,

> "Item quid precipies esto breuis ; vt cito dicta
> Percipiant animi dociles teneantque fideles ;
> Omne superuacuum de pleno pectore manat,"[2]

non oportet primo ventilare problemata [f. 79, *b*] cum magna ostentacione, nec corpus problematum cuiuslibet per argumenta ad vtramque partem distendere: set, ubi plane declaratur veritas, nec indiget contradictione, cesset multiplicatio cauillacionum inutilium: et ubi propter difficultatem requiritur obuiacio iusta exposita veritate per suas raciones, statim signentur obicienda in contrarium et soluantur,[3] quia longe melius sic iudico procedere, eo quod exposita veritate sufficienter, multa sophismata inutilia excluduntur ; vt sufficiat recitare ea que vim habent, et breuiter dissolvantur. Quia vero hic modus non seruatur in scriptis, detestanda superfluitas cumulatur ; et, quoniam hii qui virtutum nominum sunt ignari sepe par[a]logizantur secundum Aristotelem in Elenchis[4] et paruus

[1] *Top.*, i. 2, p. 101, *a*, 36. [2] *Ars Poetica*, 335-37. [3] R. solvatur.

[4] *Soph. Elench.*, i. p. 161, *a*, 17. (Virtutum means "meanings".) It is difficult to say what is the passage referred to as being in chap. 3.

error in principio est magnus in fine secundum eundem primo capitulo et tertio, atque magna pars errorum circa oraciones et argumenta oritur ex malo intellectu terminorum ut patebit, oportet secundum doctrinam Boetii libro de disciplina Scolarium in primis tradi[1] cognicionem integram terminorum: nam qui minima spernit paulatim decidet secundum Ecclesiasticum 19° capitulo.[2] Et cum multa sint consideranda circa terminos, primum estimo consideracionem de significacione[3] terminorum.

Cap. I.—*Capitulum [primum] igitur est*[4] *de ratione significandi generali.*[5]

Ad concipiendam igitur veritatem signorum oportet premittere racionem signorum, quia aliter nichil dignum nec certum potest sciri de significacione dictionum et vocum. Et, licet antequam vidi librum Beati Augustini de doctrina Christiana, cecidi per studium proprie inventionis in diuisionem signorum, quam postea inueni in principio secundi libri de doctrina Christiana, dico eius autoritate,[6] licet explico dicta eius racione et exemplis, quod signum secundum [eum] est a natura vel datum[7] ab anima. Signum vero naturale oportet quod sit duobus modis vel ex concomitancia naturali respectu sui signati, vel ex figuracione signi ad signatum, per quam potest naturaliter representare signatum. Primus modus variatur per concomitanciam[8] siue illacionem et consequenciam naturalem vel probabilem. Signum vero quod representat signatum per illacionem seu consequenciam naturalem et necessariam potest esse respectu preteriti signati vt "habet lac, ergo peperit"; vel respectu presentis, vt "habet extremitates magnas, ergo est fortis"; [vel] respectu futuri, vt "aurora est signum ortus solis cito venturi". Si vero sit signum naturale per consequenciam probabilem, tunc potest esse respectu preteriti, vt "terra est madida, ergo pluit"; vel respectu presentis, vt "est mater, ergo diligit"; vel respectu futuri, ut est "rubedo in sero est signum serenitatis in crastino," et "rubedo in mane est signum pluvie in illa die"; et sic univer-

[1] R. tradidi, *De Disç. Schol.* cap. 1. [2] Ecclus. xix., 1 (read "modica").
[3] R. significatis. [4] R. dest. [5] We should possibly read "in generali".
[6] *De doctrina Christ*, ii. cap. 2. [7] R. dūt. [8] MS. concomitatiuam.

saliter currit locus a communiter accidentibus. Secundus modus signi naturalis est quod representat per configuracionem et expressionem similitudinis, vt vestigia rerum et ymagines, et ea que aliis sunt similia, vt vestigium pedis in niue significat illud cuius est, et ymago Nicholay vel alterius, et filius similis patri est signum quod genitus est ab eo. Et sic omnia artificialia representant artem in mente artificis. Set objicitur; signum differt a causa et effectu, ut habere magnas extremitates nec est causa fortitudinis nec effectus, et ideo dicitur ab Aristotele signum; scilicet, habere lac est signum partus, non causa nec effectus et sic de aliis; ergo cum artificialia sint opera[1] artis et effectus, non erunt signa. Et dicendum quod artificiale et est factum et opus artis, et signum; in quantum est opus, sic est effectus; in quantum vero configuratur arti et conformatur, sic est signum representans. Vnde eadem res potest habere diuersas raciones, et sic diuersimode nominari. Secundus modus principalis signi est signum datum ab anima, et hoc est duplex; vnum est quod dicitur naturaliter significare apud Aristotelem, vt latratus canum, gemitus infirmorum, aliud ad placitum et per inposicionem voluntariam, ut partes oracionis. Sed obicitur quod sic latratus canis et huiusmodi erunt signa naturalia pluribus modis. Et dicendum quod aliter sumitur hic natura quam prius, quia signum naturale priori modo dicebatur a natura que est rei essencia inferens naturaliter secundum probabiliter suum signatum, vel figurata ei.[2] Sic enim essencia rei dicitur natura secundum Boetium libro de duabus naturis:[3] sic hic sumitur natura pro virtute dante racionem significandi sine deliberacione. Distinguendum,[4] secundum quod Aristoteles secundo Physicorum diuidit, agens[5] in naturam et intellectum agentem ex proposito et deliberacione. Si ad hoc curialiter objiciatur quod artifex operatur ymagines et cetera artificialia per intellectum agentem ex deliberacione et proposito, ergo erunt signa data ab anima agente per deliberacionem; dicendum quod, in quantum sunt opera, sic sunt facta ab anima ex pro-

[1] R. opus. [2] I suspect that these words should be "sicut figurata arti".
[3] *De Persona et duabus naturis*, cap. iv. *ad init*, ed. Migne, c. 1345.
[4] R. Dcē (?). [5] *Phys.* ii. 1 *et passim.*

posito et deliberacione; set, in quantum sunt signa, sic dividuntur naturalia ab eorum essencia configurata arti. Si dicatur quod potest statuere, et statuit pro signis, vt vult ex deliberacione quod talis ymago sit Nicholay, et talis alterius sancti; concedo quod tunc est signum, [set signum] dividitur vno modo naturale ab essencia configurata arti,[1] alio modo ad placitum et per inposicionem. Hec sunt signa naturalia, ut latratus canis significat iram, [que] dici possunt esse naturalia a natura specifica que est communis omnibus individuis vnius speciei, postquam operacio speciei conuenit naturaliter individuis: sic enim sumitur natura in quinto Ethice[2] ab Aristotele, et sic est de vocibus omnium brutorum, quod sic significant naturaliter, et multe voces hominum; et universaliter verus gemitus et naturalis non fictus significat dolorem in omni homine, et multa alia similiter naturaliter significant, que possunt fieri etiam ab intellectu in quantum naturaliter agit et sine proposito deliberandi.[3] Beatus tamen Augustinus libro memorato dubitat,[4] an huiusmodi voces animalium fiant cum ali[qu]a intencione anime, sed mihi videtur quod ex intencione fiant: quia animalia in aliam vocem proferunt[ur] in vno casu, [in] aliam in alio; vt gallina, cum docet pullos cauere a milvo,[5] profert aliam vocem quam quando[6] invitat eos ad escam. Non solum uero anima sensitiua facit et dat signa, et voces naturaliter significantes, set anima intellectiua que proferuntur sine deliberacione, set quodam instinctu naturali; et sic fiunt voces gaudii et letitie, et doloris et spei et timoris, tanquam subito ex naturali instinctu sine deliberacione. Set hec consideracio multum attendenda est in originali peccato, et in primis motibus aliorum peccatorum qui motus precedunt omnem deliberacionem: et similiter de motu[7] infra vel ante deliberacionem plenam.

Ex incidenti volo arguere, non dare sententiam contra opinionem magistri sententiarum et aliorum, qui estimant[8] peccatum originale fieri ex maculacione anime per carnem corruptam ex peccato primorum parentum, et ponunt exemplum

[1] R. alii. [2] MSS. ente. *Eth. Nic.* v. 10, *b*, 25 *sq.* [lect. 12] (?).
[3] MSS. deliberanti. [4] l.c. ii. cap. 3. [5] R. muluo.
[6] R. ante. [7] MSS. mora. [8] R. est iniuuat. Cf. *Sent*, ii., Dist. xxxi., 3.

de pomo proiecto in lutum, quod maculatur ex contaginacione luti. Si in anima sit ex vnione cum carne maculata,[1] esset macula sue substantie, et sui exterioris, non sue voluntatis: set omne peccatum est voluntarium. Constat eciam, quod corrupcio quam traxit caro ex primis parentibus non est peccatum, quia caro non est subiectum peccati, et ideo ex proprietate corrupcionis ipsius carnis non sit macula peccati, nec uoluntatis, set substantie anime[2] cui caro vnitur sicut patet[3] per simile quod dicunt de luto. Ex quo vlterius arguitur, quod peccatum originale videtur fieri ex motu pure voluntatis. Si igitur non fiat per deliberacionem voluntatis, fiet ex motu naturali voluntatis in ventre matris, cum vnitur carni, ante deliberacionem; quia constat quod anima embrionis non deliberat, nec etiam in natiuitate, nec cito post natiuitatem. Ad oppositum est, quod peccatum originale est mortale, et hinc[4] videtur quod motus naturalis sit mortalis; tunc enim vid[f. 80]eretur, quod motus omnis voluntatis in hominibus naturalis esset peccatum mortale, quod non conceditur. Sic igitur arguo ad vtramque partem propter motus naturales anime intellectiue. Set determinari non potest sentencia hic, cum difficillime questiones sint de peccato originali et motibus naturalibus anime rationalis, qui magis ad tertium tractatum pertinent, qui erit de pure theologicis. In hoc quidem secundo tractatu explicabo solum principaliter philosophica que sunt in vsu questionum sumptarum ex philosophia, licet in unico materialiter,[5] quomodo hec que tractabo valeant ad puras theologicas questiones. Habet autem anima racionalis signa ex deliberacione facta et a proposito, et ab Aristotele dicuntur signa ad placitum;[6] vt voces que sunt partes oracionis, et ipsa oracio, et argumenta et narraciones, et similiter nutus mutorum et signa monachorum; set tamen de partibus oracionis distinguendum, quod omnia

[1] R. macularetur.

[2] The argument requires, and no doubt Bacon wrote, "nec substantie anime . . . set voluntatis".

[3] R. ti: "patet" repeated.

[4] R. here and in several places below seems to have "nunc".

[5] Mr. Little suggests 'indico' for 'in unico'.

[6] *De Interp.* 2, p. 16*a*, 19 (lect. 4).

preter interieccionem significant ex pura deliberacione et perfecta. Interiectio vero non significat ex perfecta deliberacione, quia significat conceptum ex aliqua deliberacione, sed tamen per modum affectus, non per modum conceptus, sicut eciam voces interiectionum inperfecte sunt et abscondite. Sic igitur per viam certe consideracionis, et narratione[m] pure veritatis expresse sufficienter per autoritatem et exempla, cui nescio contradicere, patet intencio sine superfluitate sophismatum ad vtramque partem; solum inducens et soluens quasdam obiectiones; quarum soluciones necessarie fuerunt, aliter enim fecissem magnum tractatum si ad vtramque partem singulorum processissem.

CAP. II.—*Capitulum secundum de significacione vocis in particulari quoad quatuor: an scilicet vox ante inposicionem significet aliquid: secundo an sibi possit inponi et significare se ipsum: tertio quomodo inponitur rebus extra animam:* [*quarto*] *quid significat.*

Circa significata vocis in speciali multa consideranda sunt, et primo iuxta sentenciam predictam "que spernit minima paulatim tendit ad ima"[1] exponam tria minima, que tamen[2] multum valent ad sequencia. Et primum est an ante inposicionem vox significet aliquid. Quod sic probo; quia vox prolata habet speciem suam in anima proferentis, que consequitur ad eam consequencia naturali, ergo significatiua erit[3] primo modo signi naturalis. Item conformatur arti[4] et configuratur; ergo secundo modo signi naturalis significat; et [hec] concedenda sunt. Si vero objiciatur quod signum differt a causa et effectu, et alia est racio signi et cause et effectus, et vox est effectus proferentis, ergo non erit signum; solucio patet ex predictis, quia idem potest esse signum et effectus diuersimode. In quantum enim vox infert suam speciem naturali consequencia, vel configuratur arti, est signum; set in quantum est opus proferentis, sic est effectus. Set secundo queritur an aliter significet quam sic ante inpositionem. Dicendum est quod non. Si vero caute obiciatur, quod vere

[1] Ecclus. xix., 1 (loosely, cf. p. 38). [2] R. tm̄. [3] So O. R. eam. [4] MSS. ei.

potest dici quod "buba est buba," et nulla oracio est verior illa in qua idem de se predicatur, ergo est pars oracionis, et ita significat; similiter, cum dicitur "buba est vox," item hec vox buba ante inpositionem non considerata significacione naturali aut est vox significatiua aut non significatiua: de quolibet enim affirmacio vel negacio. Si buba est vox significatiua, habetur propositum. Si non, hec oracio erit vera "Buba est vox non significatiua," ergo hec oracio est significatiua; ergo partes omnes eius significant. Dicendum quod hec vocum congeries non facit[1] oracionem significatiuam set nichil significat; quia prima pars huius sermonis, scilicet "buba," est vox non significatiua ante imposicionem. Ergo tota oracio est non significatiua ab vna parte non significatiua: sicud si scribantur hee due dictiones "est," et "vox," et preponatur eis "lapis" vel "lignum" vel "pomum" in eodem pergameno, in quo illa duo vocabula sequuntur, tota congeries posita in pergameno nihil significaret. Sic nec cum hec vox "buba" scribitur[2] vel dicitur cum hoc verbo "est," et cum hac dictione, vox erit oracio significatiua. Et per hoc patet aliud; quod, cum dicitur buba ante inpositionem, aut est vox significatiua aut non significatiua, de quolibet [enim] affirmacio vel negacio. Dico quod non est hic affirmacio vel negacio, nec alia oracio significatiua, nec veritas nec falsitas, sed congeries vocum ad invicem non significatiuarum: ab vna enim parte non significatiua est tota congeries vocum hec non significatiua. Quod non possint tales orationes esse vere et significatiue, non potest fieri, nisi post inpositionem huius [vocis[3]] buba sibi ipsi.

Et tertio[4] queritur an vox potest sibi ipsi inponi, ut fiat significatiua et pars oracionis significatiue. Quod sic concedendum est: voces sunt ad placitum instituentis; ergo possunt inponi sibi sicut aliis. Item dicit Aristoteles primo Elencorum quod album et res et nomen est,[5] volens quod nomen et album potest significare res et ipsas voces. Item Augustinus in dialectica sua dicit quod hec oratio potest esse vera "Tullius est

[1] So O. R. faciunt. [2] R. scribatur. [3] So O. Not in R.
[4] This is really the second question. [5] *Soph. Elench.* 6, p. 168, *b*, 30 (?)

pes dactilicus";[1] ergo partes eius oracionis sunt significatiue; ergo Tullius significat ibi aliquid. Set nichil potest significare nisi vocem habentem longam vnam et duas breues; ergo potest significare se. Si obiciatur, quod signum est quod se offert sensui, aliud relinquens intellectui, vt communiter affirmatur, ergo vox non significabit se set aliud; iterum, panis in fenestra non est signum substantie panis, set in quantum venalis, et ideo seruatur alietas signi a significato, ergo vox non significabit se ipsam, nisi sub alia racione, quam non contingit dare, ut videtur; ad hoc dicendum quod alietas in substantia non requiritur hic, set in modo et condicione, et hoc sufficit, sicut dictum est de pane, quod significat se in quantum venalis est, et non secundum se absolute. Vnde vox considerata vt sensibiliter prolata vel audita est significatiua. Vt vero concipitur ab intellectu per speciem suam, potest ex libertate intellectus fieri nomen sui et [sibi [2]] inponi: et sic sub alia proprietate est signum et signatum.

Set quartum non est de minimis, set quasi de illis que maximam habent prolixitatem et contrarietatem opinionum; scilicet, postquam vox inposita est rei alicui extra animam, quid per vim [3] inpositionis significet principaliter: et statim do sententiam levi et plana racione, cui nullus prudens potest contradicere. Dico ergo quod vox inposita ad significandam rem extra animam significat solum eam rem secundum racionem inposicionis: nam non recipit sic racionem nominis et signi nisi propter inposicionem factam tali rei, qua propter solum significabit rem illam cui inponitur, quantum est de proprietate inposicionis. Si obiciatur secundum Aristotelem quod voces sunt note passionum [4] que sunt in anima, et hee passiones sunt species rerum, et habitus cognitiui, et non res extra, ergo uox significabit tales passiones; dicendum est quod vox inposita rei non habet conparacionem ad speciem et habitum, nisi quia inponitur rei; nec racionem nominis habet nisi propter inpositionem; set non inponitur speciei nec habitui, set solum rei, et ideo secundum hanc racionem

[1] *Dialect.* cap. 10. [2] Inserted in O. [3] R. viam.
[4] *De Interp.* 1, p. 16, *a*, 6-7 (Lect. 2).

nominis non significabit ea que sunt in anima: set quia species rei et habitus cognitiuus de re sequuntur naturali consequencia ad rem et nomen rei, eo quod res non potest intelligi sine illis, nec nomen reciperet nisi intelligeretur; ideo vox rei inposita conparatur ad speciem et habitum, sicud vox significatiua naturaliter, et primo modo signi naturalis, non sub racione nominis que est vox significatiua ad placitum. Et sic soluitur quod Boytius dicit in commentario super hunc locum, scilicet quod vox significat speciem rei in anima,[1] set non per inpositionem, set primo modo, et ideo illud quod dicit prius; "Quid est aliud esse partem oracionis, nisi mentis conceptum significare," et pars oracionis significat ad placitum et per inpositionem: Dicendum quod ibi non accipit mentis conceptum qui est habitus cognitiuus, set mentis [f. 80, *b*] conceptum, id est rem conceptam a mente. Cum autem dicit Aristoteles septimo Metaphysice, quod domus in anima est causa domus extra,[2] et ita hoc nomen "domus" significat aliquid in anima et per inpositionem, quia est pars oracionis, et subiectum in oracione et proposicione; dicendum quod sic hoc nomen domus in substantivo significat speciem domus in anima per inpositionem et ad placitum, set equiuoce et noua inpositione quam facit[3] mens ad placitum, sicud inponit vocem rei extra. Set per vnicam inpositionem factam rei extra numquam fieret domus subiectum in oracione tali, nisi iterum inponatur speciei domus in anima. Cum vero dicat Augustinus libro de Magistro, quod hec dictio Nichil significat affectum animi,[4] quia nullam [rem] potest significare extra animam ut dicit, dicendum est quod inponitur non enti secundum quod nos intelligimus non ens per prenomen entis, quia quod bene possumus facere, et sic inpositum est hoc nomen nichil, et est sufficienter loco reali extra animam quantum ad intellectum inponentem, et quantum ad inpositionem. Vnde cum dicit quod significat affectum uel affectionem, sumit affectum pro

[1] *De Int.* I. Lib. i. (Migne, T. LXIV. c. 297). According to Migne's text 'speciem' should be 'similitudinem'.

[2] This seems to be a generalized summary of lib. vi. cap. 7, especially p. 1032, *b*, 1-13 (vii., Lect. 6).

[3] So O. R. fuit.

[4] *De Magistro*, cap. ii.

re affectata a voluntate inponente, sicut expositum est illud Prisciani,[1] quod pars oracionis significat conceptum mentis. Et si dicatur quod cum non ens non potest esse nisi in concepcione et cognicione intellectus, tunc erit conceptus mentis, et dicendum est, quod non oportet, quia esse in consideracione et concepcione intellectus potest esse dupliciter vel vt species et habitus intelligendi in ipso intellectu existentes sicud accidentia in subiecto vel [ut] res prout est actu concepta et considerata. Sicut enim quodam modo est in intellectu, et sic non est solum ens, set non ens potest intelligi et esse in cognicione et concepcione mentis: set que sunt illo modo primo in cognicione intellectus, sunt species et intellectus: que secundo modo sunt intelligibilia, siue ens siue non ens.

CAP III.—*Capitulum tertium de connotatis [et cointellectis per res quibus nomina imponuntur].*[2]

Deinde diligenter considerandum est vlterius, quod nomen inpositum alicui rei soli extra animam, potest multa simul significare extra animam, et hec vocantur in philosophia cointellecta, et apud theologos connotata. Omne enim quod naturali et necessaria consequencia sequitur ad nomen alicuius, cointelligitur et connotatur in eo, quia aliter non sequeretur ad ipsum necessario, vt "creatura, ergo Creator" et "Creator, ergo Deus" quia solus Deus creat. Et omne accidens proprium connotat suum subiectum, ut "risibile, ergo homo"; et omne vniuersale connotat particulare vagum: et particulare vagum et signatum connotant speciem, et species genus, et relatum connotat alterum correlativorum, et aggregatum connotat materiam et formam, et sic de infinitis aliis est quod naturali consequencia concomitantur alia; ergo connotantur et (?) cointelliguntur per ea, quapropter nomen significabit ea. Si obiciatur quod non vniuoce potest significare plura, quia vni tantum inponitur, nec equiuoce, quia non est nisi vnica inposicio, et equiuocacio non est sine pluribus inpositionibus, dicendum quod vniuoce et

[1] *Inst.* XI. 7 (Keil II, p. 552.)

[2] These words are in a different hand in R., but "et cointellectis" can be discerned in red under the new writing.

equiuoce significare referuntur ad modum significandi per inpositionem et ad placitum, et sic dictio non significat nisi illud cui imponitur, set in predicto modo significandi per concomitanciam naturalem est primus modus significandi naturaliter, qui prius expositus est. Si eciam obiciatur quod nomen quodlibet potest poni in oracione pro significato suo, set nunquam pro aliquo dictorum que uocantur connotata, ergo[1] non significabuntur per nomina, quod patet, quia cum dicitur "animal currit," vel "Socrates est animal," non potest nomen stare pro anima nec pro corpore; et sic de aliis dicendum est quod, cum nomina sunt partes oracionis, et pars oracionis significat ad placitum, et hoc est solam rem cui imponitur, nunquam stabit pro alio, et ideo non pro connotatis, nisi fiat eis noua inpositio, quod pluries fit, et ideo non sequitur nisi quod pro illo cui inponitur stabit in oracione, nec significabit nisi id per inpositionem: set tamen alio modo significandi poterit aliud significare, ut eciam multa, ut nomen aggregati per inpositionem significat illud tantum, simul tamen connotat materiam et formam, et proprium [et] accidens, et multa alia que intelliguntur per illud naturali consquencia, set tunc est grauis dubitacio Aristotelis in 8 metaphysice et grauior Commentatoris de nomine aggregati.

Nam Aristoteles querit vtrum nomen aggregati significet aggregatum, vel formam;[2] vel vtrum hoc nomen domus significet cooperimentum, quod est formale, an totum conpositum ex lapidibus et lignis quod est aggregatum; et vtrum hoc nomen linea significet duo puncta que sunt formalia, an[3] totam longitudinem terminatam ad illa duo puncta, et an animal (?) significet aggregatum, an animam. Et Aristoteles soluit quod vtrumque significat, set non secundum vnam diffinicionem significacionis, et vnum[4] per alterum: set qualiter diversimode, non dicit, nec cui nomen debetur per alterum. Et dicendum quod nomen[5] aggregato inpositum significat ipsum primo et principaliter; et formam et materiam mediante aggregato. Et

[1] MSS. igitur (as often).
[2] *Met.* vii., 3, p. 1043 *a*, 29 *sq.* (*i.e.* the medieval Bk. viii., lect. 3).
[3] R. ad. [4] R. uni. [5] MSS. nomini.

diuersus est modus significandi; quia nomen aggregati ipsum significat ad placitum et per inpositionem: materiam vero et formam primo modo significandi naturaliter. Set quia Aristoteles hoc non exprimit, ideo Commentator conatur exponere, et dicit contrarium ei, quod non dixi propter quod necessarium est discutere illud. Commentator uero docet quod forma magis [est] et prius et dignius et principalius, et aggregatum secundario; et ad hoc ponit suam racionem, dicens quod nomen [non] significat rem nisi secundum quod est in actu, et causa actus in composito est forma; et cum duo fuerint quorum alterum est causa reliqui, illud quod est causa dignius habebit nomen; quia illud est nomen secundi propter primum, vt res calide participant nomen caloris, set ignis participat nomen caloris proprius.[1] Hec est sententia Commentatoris. Set in prima parte huius operis ostendi universali sermone, quod eius doctrina respuenda est ab omni sapiente propter certissimas causas, et quia destruxit philosophiam Aristotelis. Nunc vero et deinceps descendam in particulari ad eius opiniones efficaciter destruendas: et ostendam quod illi qui adherent ei turpiter decipiuntur, et philosophie nesciunt veritatem. Dico ergo quod nec sentencia principalis eius est vera, nec verba, nec raciones, nec exempla que inducit sunt vera, nec propria, nec ad propositum. Prius ideo ostendo quod nomen aggregato inpositum non sit forme. Nam nomen est vox significatiua ad placitum, secundum definicionem nominis datam ab Aristotele; et hoc est quod significat per inposicionem rem cui inponitur ex intencione inponentis: set nomen inpositum aggregato ea ipsa inposicione non inponitur forme, licet nova inposicione possit inponi et per equiuocacionem ad placitum inponentis: ergo nomen aggregati non est nomen forme aliquo modo, cum nomen non sit nomen alicuius, nisi inponatur ad placitum ei cuius debet esse nomen. Ideo omne nomen potest subici et predicari in oracione pro eo cuius est nomen, vt patet inductiue: set nomen inpositum aggregato, nisi racionem[2] inponatur

[1] R. per prius.

[2] R. ro'm; O. iterum. There is some corruption here; probably Bacon wrote "nova inpositione," or "iterum".

forme, non potest aliquo modo verificari pro forma, vt cum dico "homo currit," non verificatur pro anima: vnde non est sensus quod anima currat, vt cum dicitur "Socrates est homo," non verificat[ur] pro anima; igitur hoc nomen homo non est nomen anime. Item nomen aggregati non habuit racionem ad formam in significando eam, nisi per inposicionem, et post inpositionem factam aggregato: ergo, si nomen aggregati est significatiuum forme, uel nomen, oportet ad minus quod sit primo et principaliter aggregati et nomen eius; quia vnumquodque propter quod, illud magis. Et hoc allegat pro[1] se Aueroys, licet falso, cum dicit "quando duo fuerint quorum alterum est causa reliqui, illud quod est causa dignius habebit nomen". Dico igitur quod nomen aggregato inpositum non est nomen forme, quia nomen est vox significatiua ad placitum, non naturaliter: set concedo quod significat formam et similiter materiam, tanquam significans naturaliter. Quia primo [modo] signi naturalis nomen aggregati significat formam et materiam, et secundum hoc non est nomen quia [f. 81], nomen est vox significatiua ad placitum. Et per hoc vlterius patet quod primo et principaliter et proposito ac principali modo significandi in vocibus et nominibus nomen aggregati significat aggregatum, et secundario significantur forma et materia per nomen aggregati. Et vt verba eius reddantur inpropria et falsa cum dicit "nomen aggregati est dignius forme," addo quod nomen cuilibet rei inpositum dignius est eius quam alterius cui non inponitur, vt patet in omnibus nominibus: et etiam dignius est ut aggregatum habeat nominacionem propriam quam alienam[2]: quia quicquid dignitatis est in forma, aggregatum habet, et vltra hoc, materie dignitatem[3]: Vnumquodque sicud se habet ad esse sic ad intellectum, vt Aristoteles dicit primo metaphysice,[4] set aggregatum habet verius esse quam forma; quia preter esse forme habet esse materie: qua propter verius et dignius potest intelligi, quantum est a parte

[1] MSS. per. [2] R. suam. O. formam.
[3] R. adds "et" and leaves a blank as though for a short word.
[4] A paraphrase of *Met.* I. 2, p. 982, *b*, 32 *sq*. (Lect. 2).

sua, igitur et (?) nominari. Item quantum est a parte nostra, quia secundum Aristotelis priora et vt experimur nata est via nobis cognoscendi a confusis ad distincta, et ideo ab aggregato ad formam et materiam : ergo, cum facilius et citius et melius intelligimus aggregatum, facilius a nobis et verius recipit nomen quam forma. Item cum differentie generales rerum sunt ignote nobis, vt Aristoteles dicit quarto metheororum,[1] set hee differencie substanciales sunt forme rerum substanciales, [et] longe minus note sunt forme quam aggregata. Hec autem omnia convincunt Auerroys in hoc quod dicit quod nomen dignius est forme quam conpositi : quia non solum mentitur de nomine aggregati, sed de nominacione propria ipsius forme et aggregati, quia dignius est aggregatum nominari quam forma propria denominacione, quam forma sua propria nominacione : et ideo multo forcius est aggregatum dignius suo nomine quam forma nomine aggregati ; nec Auerroyiste inpedire possunt hec, licet sentiunt cum eo quod forma dat esse aggregato : nam non solum forma dat esse aggregato, set materia, licet forma plus. Materia enim non nichil est, set vera natura, et essencia, habens esse sue essencie, et ideo cum cedat in essenciam conpositi, essentia conpositi et esse eius dependent essencialiter a materia, licet forte magis a forma. Cum autem arguit Auerroys quod nomen debetur aggregato secundum quod est in actu, set est in actu

[1] The actual words cannot be found in this book. Bacon is probably thinking of p. 378, *b*, 10-24 (Lect. 1) and p. 380, *b*, 30 (Lect. 5). In the first of these passages Aristotle is speaking of the difficulty of defining the four elements—heat, cold, the dry, the wet. We do so indirectly, he says, by means of their effects in the case of the active elements, heat and cold, and by the changes they suffer in the case of the passive. In the second passage we read that gold and wood are only metaphorically said to be "boiled" (*i.e.* smelted), there being no proper name for the operation (*οὐ γὰρ κεῖται ὀνόματα ταῖς διαφοραῖς*). Aristotle's doctrine is not that the "differentiæ" of the elements are unknown, but that they are difficult to define and some have no recognized names. Bacon has probably misunderstood the doctrine of Aristotle: but perhaps he means merely that the ultimate constitution of matter (forms in the sense of Francis Bacon, the "veræ differentiæ" of things), is (at present) unknown to us (he does not say "unknowable"). Since Aristotle is disposed to assume that knowledge consists in definition, Bacon might have contended that he ought logically to have admitted that what we cannot define we do not know.

per formam, ergo nomen debetur forme et magis, quia est causa esse actualis; nam cum aliquid debetur duobus quorum vnum est causa reliqui, magis debetur cause quam causato: dicendum est quod vile sophisma facit, quia non debetur alicui rei propter eius esse actuale, nec propter causam illius esse, quia tunc naturaliter significaret, set debetur cuilibet rei non ex se, set ex uoluntate instituentis, quia nomen est vox significatiua ad placitum: et ideo, licet forma sit causa rei, et materia similiter, non sunt causa nominacionis conpositi, nec nominacionis proprie, sed liberum arbitrium inponentis nomen secundum sue bene placitum voluntatis. Quod etiam inducit exemplum de calido in igne, et in aliis calidis, licet exemplum verum sit secundum se, tamen nichil est ad propositum, et falso applicatur. Concedendum enim est quod nomen calidi dignius et principalius dicitur de calido in igne quam de aliis calidis, quorum caliditas ignis causa est: set hoc nichil est utile[1] ad propositum Commentatoris, quia nomen aggregati non causatur a forma, set a bene placito instituentis: nec hoc nomen habet conparacionem aliquam ad formam ante inposicionem factam aggregato, set solum per inpositionem factam aggregato et secundario. Propter quod forma, si participat aliquo modo nomen aggregati, habebit hoc ab aggregato et non e converso; et tamen forma non participabit nomen aggregati vt dicatur nomen eius ad placitum, et ideo non in racione nominis, quod est vox significans ad placitum; set solum erit eius tanquam vox significatiua naturaliter primo modo signi naturalis, ut sepe dictum est. Sic igitur patet insania Auerroys et multiplex eius fatuitas, que stultos cogit multipliciter in errorem. Nunc in fine istius capituli innuo et excito lectorem, vt consideret qualiter vox significet multa in figuratiuis locucionibus, quibus maxime sacer textus plenus[2] est; cum preter sensum literalem potest vox significare tres alios sensus, scilicet allegoricum, tropologicum, et anagogicum. Set hec consideracio propria est in tertio tractatu qui appropriatur textui sacro: similiter quomodo sacramenta significant, et alia signa sacri textus: aduertat tamen prudens considerator,

[1] R. simile. [2] R. plenius.

et inveniet quod secundus modus signi naturalis in hiis specialiter operetur.

CAP. IV.—*Capitulum quartum prime distinctionis duo principia logice et metaphysice exponit; scilicet quod vox non potest significare aliquid commune enti et non enti, et quod vox inposita possit cadere a sua significacione.*

Hiis predictis annexa sunt principia duo communia methaphysice et logice maxime neccessaria, propter quorum ignoranciam grauissimi errores contingunt in tota disputacione tam theologica quam philosophica. Primum istorum est quod vox non potest significare aliquid commune vniuocum enti et non enti, licet huius contrarium sit wlgatum, et obstinate gaudeat multitudo studentium hoc errore. Secundum est magis neccessarium: scilicet quod vox potest cadere a sua significacione, cuius contrario non solum obstinate sed obstinatissime omnes fere detinentur, vt fingant non solum errores innumerabiles, set hereses detestandas. Ex ignorancia istorum duorum problematum tenet multitudo quod Cesar mortuus sit homo, et quod homo mortuus sit animal, et quod Christus in triduo fuit homo, et alia infinita falsissima et stultissima circa restrictiones et amplitudines in proposicionibus, et circa necessitates et contingencias,[1] et alia, de quibus omniabus disputandum est per ordinem suis locis. Et duobus modis procedam pro veritatibus stabiliendis; probando scilicet quod verum est, et dando [2] oppositum omnia volo soluere que possunt obici in hac parte. Nam in hiis erroribus maxime vigent autoritas fragilis et indigna et consuetudo longa, et sensus dampnabilis multitudinis stulte, que sunt cause errorum omnium in vita et studio sicud copiose et efficaciter declaratum est in prima parte huius operis et probatum est; et optime noui pessimum et stultissimum istorum errorum [autorem [3]], qui vocatus est Ricardus Cornubiensis, famosissimus apud stultam multitudinem; set apud sapientes fuit insanus,[4] et reprobatus Parisius propter errores quos invenerat, [et] promulgauerat quando solempniter legebat sentencias ibidem postquam

[1] R. contingendas.
[2] Perhaps "refutando".
[3] So O. R. errorem.
[4] R. insanis.

legerat[1] sententias Oxonie ab anno Domini 1250. Ab illo mccl. igitur tempore remansit multitudo in huius magistri erroribus vsque nunc, scilicet per quadraginta annos et amplius, et maxime invalescit Oxonie, sicut ibidem incepit hec demencia infinita.

Prologum igitur istum premisi ante distinccionem istorum problematum cum suis correlariis propter maximas stulticias non solum per disputacionem euacuandas, set prius in prohemio denuntiandas fore dignissimas detestari.[2]

Primo igitur ostendo, quod nomen non potest significare aliquid commune vniuocum enti et non enti, siue presenti, preterito et futuro. Aristoteles enim dicit secundo methephisice[3] quod nichil est commune preterito et futuro et ei quod habet potentiam iam essendi, hoc est rei presenti; nec aliqua difinicio communis est eis. Item ubi non est conueniencia relata, inpossibile est quod sit absoluta; set entis ad non ens non est comparacio, ut Aristoteles dicit capitulo de vacuo:[4] ergo non conuenient in aliquo absoluto nec communi eis. Item illud commune futurum aut est ens aut non ens, quia de quolibet affirmacio vel negacio; si uero sit ens, non conueniet non enti: si uero sit non ens, non conueniet enti: ergo non est[5] commune. Item illud commune si est sic, cum declinat in [f. 81, *b*] preteritum, non est; similiter cum in futurum descendit, non est; igitur solum [est] dum est in presenti, quapropter erit tantum commune presentibus. Item illa que distant infinita distancia et diuersimode non possunt conuenire in aliquo; set ens et non ens sunt huiusmodi, quia super[are] hanc distanciam non potest nisi potencia infinita, vt in creacione que fit a nichilo in aliquid; ergo etc. Item plus conueniunt omnia encia quam ens et non ens: sed nichil potest esse commune vniuocum

[1] R. legeret.

[2] In R. a marginal note in an early 14th cent. hand reads: "id quod hic scribitur minio et litera et non rubrica."

[3] Bacon is thinking of the doctrine that there can be no common εἶδος when there is a πρότερον and a ὕστερον (*Met.* II. 999, *a*, 6), which of course really refers to *logical*, not temporal priority. *Cf. Eth. Nic.* I. 4, p. 1096, *a*, 17-18.

[4] The passage intended is probably *Phys.* iv. 8, p. 215, *b*, 19-20 (lect. 14), ὁμοίως δὲ καὶ τὸ κενὸν πρὸς τὸ πλῆρες οὐδένα οἷοντε ἔχειν λόγον.

[5] R. "esse".

x predicamentis que diuidunt en[s nisi] equivoce vel analogice: ergo multo fortius nec poterit aliquid esse commune vniuocum enti et non enti. Item plus distat et differt Creator a nichilo[1] quam a creatura: set nichil commune vniuocum est Creatori et creature: ergo nec enti et non enti. Item plus conueniunt materia et forma, et conpositum, quam ens et non ens: set nichil est commune vniuocum istis tribus set equiuoce, scilicet hoc nomen substancia quod[2] predicatur de hiis tribus; cuius probacio est quod substancia predicata de hiis non est genus generalissimum, quia illud esset conpositum ex materia et forma, sicud Boycius dicit super predicamenta,[3] et Augustinus similiter in commentario suo super predicamenta Aristotelis,[4] et hoc satis patebit inferius; ergo multo minus erit aliquid commune enti et non enti. Item quia maxime inconuenienter fingunt quod Cesar significat aliquid commune enti et non enti, et vniuoce, et vna inposicione, arguo: hoc nomen Cesar non potest significare aliquid commune vniuocum pluribus Cesaribus[5] existentibus nec vniuoce nec vniuoca inposicione, set pluribus inposicionibus, et equiuoce, vt patet omnibus: ergo multo minus erit hoc nomen Cesar commune enti et non enti vniuoce. Sed tamen querunt subterfugia diuersa, et loco racionis falsas cauillationes inducunt dicentes quod nomen inponitur essencie rei; abstrahendo ab omni differencia temporis. Sed hoc patet materialiter esse falsum, quia omnia nomina que inponimus rebus inponimus vt sunt presentia nobis, vt de nominibus hominum in baptismo et similiter quando inponimus nomina animalibus, fertur intencio nostra ad rem presentem nobis, vt manifestum est consideranti. Nunquam enim homines, quando inponunt nomina infantibus vel animalibus suis, respiciunt nisi ad res presentes sensui, et ideo non abstrahunt a presenti tempore, nec ab esse actuali. Preterea[6] potest obici sicut prius querendo an sit ens, et tunc non conueniet non enti. Item essencia preterita non est[7] essencia sicud nec essencia mortua, vel homo mortuus: similiter

[1] R. u'o. [2] R. qui. [3] *In Categ:* lib. i. (Migne, t. lxiv. c. 184 *sq.*).
[4] *Categoriae*, cap. 9 (Migne, t. xxxii. c. 1420).
[5] R. Cesar ibi scilicet. [6] R. ppa (propterea?). [7] R. esse.

nec essencia futura est essencia, sicut nec essencia in potencia vel ens in potencia. Quia hoc est secundum quid, et ideo non monstrat[1] essenciam simpliciter; ergo sola essencia presens sub esse actuali est essencia: ergo, si nomen significat essenciam, significat presentem sub esse actuali. Set hoc cauillant dicentes quod nomen significat rem sub esse essencie, que non est esse actuale, set commune presenti, preterito ac futuro. Contra quod procedendum sicud contra essenciam quia commune[2] essencie non[3] est sine essencia, et ideo querendum est ab eis an res sub isto esse sit aliquid uel nichil, sicut prius; et res sub isto esse, si est preterita, nichil est; si est futura, similiter nichil est: ergo solum erit presens si est quod est in esse actuali. Et planum est quod nomina inponuntur infantibus et omnibus sub esse presenti. Et eciam esse actuale aut erit idem quod essencia vt aliqui concedunt, aut[4] erit propria passio essencie, vt alii senciunt,[5] quod inpossibile est quod essencia sit sub esse essencie, nisi concomitetur esse actuale et presens; quia si est idem cum essencia aut concomitans illud sicut propria passio, manifestum est quod non potest essencia sine illo esse manere, et ideo essencia semper est presens sub esse actuali. Item essencia in rebus conpositis fit ex vera vnione materie cum forma, vt[6] patet in homine et indiuiduis eius, et in animalibus et aliis similiter: ergo, cum non sit vnio materie cum forma, non est essencia conposicionis. Quapropter, cum anima separatur a corpore, uel pereat, non erit essencia talis rei: ergo cum in morte separatur anima a corpore, vel in brutis corrumpatur, et in aliis rebus forma corrumpitur (*sic*), non manebit nec erit essentia nec esse essentie: et ideo insaniunt qui dicunt Cesarem[7] esse uel hominem, anima a corpore separata. Sed cum mendacia multiplicantur semper, et iterum fingunt vnum esse quod nunquam a philosophia nec a sapientibus fuit inventum nec receptum, et dicunt illud esse habituale, et hoc dicunt esse commune presenti, preterito, et futuro, et commuue enti actualiter et non enti actualiter; nec intelligunt quid dicunt,

[1] R. msr̄ or insr̄ (insuper ?). [2] R. communi. [3] R. nō. [4] R. et.

[5] R. reads "senciunt cor quod," which possibly was originally "alii eorum sentiunt".

[6] R. et. [7] R. cessarem.

nec sciunt dicere quid sit hoc esse, set ob hoc solum fingunt ut euadant et sermone[1] contradicant veritati. Arguendum est igitur contra hoc esse futurum, sicut prius: res uel essencia habens tale esse aut est ens aut non ens, et sic ultra sicut prius. Et iterum, cum est preterita, non est [futurum] vel presens: et ideo solum erit ens, et artabitur ad ens tantum et esse actuale. Item possumus arguere contra eos ex propriis philosophie, et autoritate Aristotelis secundo de anima, vbi vult quod habitus est actus primus et forma;[2] ergo esse habituale est a forma presente in materia; ergo in separacione vel corrupcione forme a materia non erit esse habituale; et ideo nec homo nec Cesar habent (*sic*) esse habituale postquam anima separata est a corpore. Item ad hoc insaniunt contra veritatem dicentes quod ens per quantumlibet significet esse presens et esse actuale in preterito, tamen ens nomen significat abstracte ab esse actuali et cum communitate quadam ad ens et non ens actu. Et contra hoc procedendum est sicut prius; aut illud commune est ens aut non ens, et patet processus. Item, si illud est preteritum uel futurum, nichil est; ergo tantum significabit presens. Item ex participiis[3] potest argui contra hoc: quoniam nomen et participium non differunt in re significata, set in modo significandi, vt dicit Priscianus, ut amans illius, nomen est, [et] amans illum est participium,[4] et ideo eandem rem significant propter quod res significata per hoc nomen amans et per hoc participium amans idem significat; et ideo sumitur de ente. Quapropter, si ens participium significat rem presentem et actualem, et hoc nomen ens similiter, hiis reprobatis patet quod esse in potencia vel in aptitudine non possunt allegari, licet aliqui stulti euadant verba stultorum; set sapientes sciunt quod esse in aptitudine non est esse, vt cecus aptus natus est ad videndum, non tamen potest dici quod videt, set eius contradictorium non est verum. Similiter esse in potencia vere[1] non

[1] A short space in R.

[2] This exact statement does not occur, but in *De Anima*, II. 1 (p. 412, *a*), Aristotle implies that *ἐπιστήμη*, which is a ἕξις (*habitus*), is a *πρώτη ἐντελέχεια* and says that the *εἶδος* is the *ἐντελέχεια*. Bacon puts the two statements together and extends it to every kind of *habitus*.

[3] R. propriis.

[4] *Institutiones*, lib. xi. 1, 5 (Keil, *Gramm. Lat.* ii. p. 550).

est, quia indiget producente ipsum in esse; ut filius est in potencia, ergo non est. Set adhuc cauellant (*sic*) de esse habitudinis set hoc in pronomine habet locum, et ideo[2] destruetur postea, cum de proposicionibus fiet sermo. Mira igitur fatuitas est puram et planam veritatem contempnere gratis, et declinare ex maxima superbia ad stultissimas falsitates.[3]

Ad oppositum pro eis sunt fantastice eorum predicationes;[4] quod, in quantum destructe sunt, pertinent ad priorem partem problematis; sed, in quantum solute sunt, pertinent ad secundam. Set tamen alique cauillationes sunt racionabiles, et solui possunt veraciter. Vna est quod nomen significat sine tempore,[5] vt Aristoteles dicit:[6] ergo abstrahit a presenti, preterito et futuro. Dicendum quod hoc est quantum ad modum significandi, non quantum ad rem, ut inpossibilia[7] [et] vacuum et infinitum et talia. Sic possumus inponere illis nomina, set alia inposicione et alia quam illa que entibus fit, et equiuoce; ut Cesar potest per nouam inposicionem significare Cesarem preteritum vel futurum vel mortuum, set equiuoce enti et non enti. Item Aristoteles dicit in libro Peryermenias[8] quod a predicato priuatiuo vel a nomine infinito sequitur nomen negatiuum, ut "est iniustum vel non iustum, ergo non est [iustum[9]]," licet non e converso. Ergo, cum dicit quod bene sequitur "hic est iniustus, ergo non est iustus," et non sequitur "homo non est iustus, ergo est iniustus uel non iustus," oportet quod hec[10] sit consequencia, non sicud non esse iustum; vel oportet quod consequencia teneat, "homo non est iustus [f. 82], ergo est iniustus". Racionalis vero est hec objectio, quam cum sequente inveni ante quadraginta [annos][11] quando difficultates[12] huiusmodi ventilaui. Dicendum est igitur quod duplici de causa potest intelligi quod non sequitur a negatiuo predicato ad infinitum vel priuatiuum; aut quia talis subiectus tali predicato negatiuo sumitur commune enti et non

[1] R. vera. [2] So O. R. non. [3] So O. R. falli. [4] R. ꝑdiccōe.
[5] R. siue rem. [6] *De Interpretatione*, ii. p. 16, *a*, 19-20 (Lect. 4).
[7] MSS. inpossibilia ut. [8] *De Interp.*, x., p. 20, *a*, 31-40 (Lib. ii., Lect. 2).
[9] Inserted by O. [10] R. homo.
[11] R. q. . . . (for annos). [12] R. difficultatis.

enti vniuoce, et hoc est falsum; vel quod subiectus potest equiuoce significare ens & non ens, siue quod subiectus talis potest esse ens vel non ens; quod in idem redit, quia priuatiuum[1] est commune enti et non enti propter negacionem esse sub tali predicato, quia negacio plus tollit quam affirmacio affirmet, vt "non esse iustum". Propter quod potest dici de Socrate existente quod non est iustus si est iniustus, et de Socrate[2] mortuo quod non est iustus, sed non quod sit iustus. Similiter de homine viuo potest dici quod non sit iustus, si est iniustus; et de homine mortuo quod non est iustus; et ideo si hoc nomen homo vel Socrates sumatur equiuoce pro homine ente et non ente; vel Socrates oracio est multiplex, pro ente et non ente, non vniuoce nec vnica inpositione. Quoniam predicatum necessarium potest verificari de subiecto aliquo ente, et de aliquo non ente; nunquam tamen sequitur ex hoc, quod de eodem subiecto et uniuoco predicetur quod sit vniuoce commune enti et non enti, set equiuoce. Item argui potest sic per hoc quod Aristoteles loquitur de subalternis in libro predicto. Dicit enim "aliquis est pulcer," "aliquis non est pulcer," et negatiuam probat dupliciter dicens "si enim est fedus, non est pulcer," et quod fit pulcrum non est pulcrum, quia quod fit non est.[3] Similiter aliquis (*sic*) fit vt domus per artem, ut homo vel animal in generacione naturali, ergo aliquid non est; et constat per aliquid est, ergo hee sunt vere "aliquid est, aliquid non est". Magna videtur perplexitas eo quod hoc videatur sequi ex dictis Aristotelis; set cum non dicit hoc, nec loquitur de hiis subcontrariis, "aliquid est, aliquid non est," set videntur posse assumi per simile ex hoc dicto, "quod fit non est; set aliquid fit, ergo aliquid non est". Et ideo dicendum quod hec est falsa "aliquid non est," quia aliquid sumptum simpliciter significat ens in actu, et sic non significat ens in potentia, et ideo similiter hec est falsa, "aliquid fit," quia simpliciter sumptum dicit ens actu, set ens actu est iam in fisico[4] esse, quapropter falsa est hec "aliquid non est". Si

[1] R. pªtū. [2] R. forte.

[3] These exact words do not occur in the *De Interpretatione*, but the problem seems to be suggested by cap. 12, p. 20, *a*, 35 *sq*.

[4] R. in sicō.

dicatur quod addiscens aliquam scienciam non solum est in potencia sciens sed quodam modo actu, vt Aristoteles vult nono methaphysice,[1] dicendum est secundum partem aliquam uel aliquas potest habere scientiam, secundum partem set non totam: nec denominabitur sciens talem scienciam, vt, licet aliquis puer didicerit alphabetum, et sciuerit ipsum, non tamen scit grammaticam nec dicitur grammaticus, set dicetur in potencia scire grammaticam. Et est potencia essencialis, que indiget agente et generante scienciam in puero, et ideo non dicetur actu grammaticus, set in potencia; quia est in fieri, et quod sit hoc modo non est in facto esse, nec in actu. Si dicatur quod motus et tempus sunt vere aliquid, et constat quod non sunt aliquid [nisi] in fieri, set quod fit non est, ergo aliquid non est; dicendum quod esse in fieri est dupliciter: vel quod tendit in futurum[2] esse, vt sit permanens in actuali esse, et sic quod fit non est: aliter dicitur esse in fieri quod non requirit aliud esse quam fieri, sicut successiua: et tale fieri non tollit esse debitum talibus rebus. Set de hiis rebus est multiplex difficultas; de contrariis non est ad presens inquirendum. Ex hac ergo radice patet quod non potest homo esse animal nullo homine existente, nec Cesar poterit esse homo: quia nomina huiusmodi significant essencias rerum presentes et actuales, quia nomen significat aliquid commune presenti, preterito et futuro. Set tamen multas alias cavillationes fingunt circa huiusmodi propositiones, et faciam racionabiles [responsiones] cum veniam ad proposiciones per leges necessariarum proposicionum et per se uerarum set in tantum dictum sit nunc de hac radice.

CAP. V.—*Capitulum quintum huius prime distinctionis de hoc quod vox potest cadere a sua significatione, quod negant*[3] *cavillando obstinatissime.*

Boycius quidem libro diuisionum dicit, " si nulla[4] alia sit res quam significet, vox designificatiua esse non dicitur:[5] item

[1] *Met.* viii. 6, p. 1048, *a*, 34-5 (Lect. 5).
[2] R. factum. [3] MS. nunc. [4] R. nullam.
[5] *De Div.*, ed. Migne T. lxiv. c. 889. Migne's text has 'subjecta' for 'alia'.

perempto vno relatiuorum, perimitur et relatiuum [alterum]." Si enim non est pater, non est filius, nec e contrario: set signum et signatum sunt relatiua, ergo perempto signato, non erit vox significatiua. Item nichil quod venit [ab] extra [1] et ab extrinseco nec de natura rei potest esse necessarium ei et perpetuum: set significacio non est de natura vocis, set accidit ei ab extrinseco, et aliquando [sine] illa [2] habuit suam materiam et formam in esse completo nature sue; ergo significacio non est ei necessaria nec perpetua; ergo potest deleri ab ea. Item quod solum recipere potest aliquid ad placitum nostrum, potest ad placitum nostrum perdere illud: set nomina inposita rebus sunt [3] signa ad placitum nostrum; ergo possunt amittere racionem signi, cum placeat nobis: et hoc patet per experienciam quasi infinitorum nominum et verborum que antiquitus significabant,[4] set nunc apud nos nichil significant: que si quis proferret, reputaremus voces non significatiuas nec aliquid intelligeremus per eas, ut si dicerem "faxo domum," "faxi arcam," "faxit ecclesiam," nullus nunc in vsu communi intelligeret; nec alicui significarent ista verba aliquid, licet antiquitus "faxo" "faxis," "faxit" significabant "faciam," "facies," "faciet" testante Prisciano, et sic de infinitis. Item hoc possumus videre in aliis signis: nam quando notum est hominibus quod vinum est in taberna, circulus expositus pro signo tenet racionem signi vini; quoniam (?) quando sciunt quod vinum non est in taberna, licet exponatur circulus, nullus tamen recipit circulum pro signo, quia illo viso non intrent [5] pro vino, scientes quod non est signatum: ergo iam cecidit a racione signi eadem voluntate hominum, qua fuit prius signum factum. Set racionabiles obiectiones possunt fieri huiusmodi: licet res non sit presens cui nomen inpositum est, illa tamen eadem est preterita: ergo potest significare illam adhuc, set vt preteritam, et ita idem significabit cui inponebatur. Dicendum est quod non; quia non inponebatur nisi sub racione [6] presentis et esse actualis, vt patet ex priori probacione; et

[1] R. exin, followed by a blank space.
[2] R. illo.
[3] R. secundum.
[4] R. signabant.
[5] R. irent.
[6] R. re.

ideo cum periit res, et sic non est, nomen non significabit illud. Item si dicatur, licet preterita res non sit, et ita[1] nichilominus tamen potest esse significatum vocis, vt patet de vacuo et infinito, et de hoc nomine nichil, et de nominibus infinitis ut vocamus,[2] et aliis huiusmodi; dicendum est quod vox que significabat rem presentem per inpositionem aliquando non significabit rem illam preteritam sub eadem inposicione; set bene potest inponi ei noua inposicione, licet sit nichil; quia possumus per priuacionem entis intelligere non ens; et sicut intelligimus non ens, sic possumus dare nomen, set noua erit inposicio, et equiuoce respectu prioris signati. Si obiciatur illud Augustini in dialectica:[3] cum dico "Tullius est orator," "Tullius stat in capitolio deauratus," "Tullius iacet in sepulcro," "Tullius est pes dactulicus"[4] omnia hec dicuntur equiuoce; cum igitur transferunt nomen ad statuam[5] Tullii et ad cadauer et pedem, multo fortius ad personam Tullii cui nomen inponebatur. Et dicendum quod non significat illa nisi per nouas inpositiones; et sic concedendum est quod postquam cecidit vox a significacione, propter rem cui inposita fuit mortuam, sic potest inponi illi preterite. Item cum dicitur "Tullius est orator," aut stat pro eodem significato quo prius in vita et habetur propositum, aut non, set pro statua, vel cadauere, vel persona mortua, et sic erit oracio tota falsa. Set Augustinus dicit quod sit vera. Dicendum est quod stat pro persona preterita: et similiter orator pro oratore preterito, et aliter non habet veritatem. Si dicatur "Cesar est Cesar," et "homo est homo," est semper vera, quia nulla proposicio verior illa in qua idem de se predicatur; et oracio vel proposicio est vox significatiua, ergo partes eius semper significant postquam semel significabant, ergo siue res sit presens siue preterita semper significat; item, cum dico "Cesar est Cesar," hoc nomen Cesar est pars huius oracionis, et oracio est vox significatiua ad placitum, ergo partes eius significant ad placitum: dicendum est, sicut superius [f. 82, *b*] dictum est, quod vox ante inposi-

[1] A word seems to have dropped out: possibly 'futura res'.

[2] R. nōhō. O. omits the whole clause.

[3] *Dialect.* 10.

[4] R. dactulis.

[5] R. fortuam.

cionem non est pars oracionis, quia non est significatiua ad placitum; et similiter, cum cadit a significacione vel per voluntatem nostram vel per hoc quod res cui inposita fuit non est, et ideo tunc nichil significat ad placitum nisi casu inponatur. Et ideo cum hec vox Cesar fuit inposita rei presenti et sub actuali esse re pereunte manet non significatiua, nisi iterum inponatur. Et ideo ante inposicionem renouatam nichil significat: et propter hoc hec vox "Cesar est Cesar" nichil significabit, nec est oracio nec proposicio, nec verum nec falsum significat, quia ab vna vel duabus partibus non significatiuis est totus sermo non significatiuus. Et per hoc patet secundum, quod talis oracio non est vox significatiua ad placitum; quia partes eius nichil significant. Et ideo si obiciatur: Cesar est vox significatiua, vel non est significatiua; de quolibet affirmacio vel negacio; si igitur est vox significatiua, habetur propositum; si non est, hec oracio est vera "Cesar nichil significat"; set oracio vera est vox significatiua ad placitum, ergo partes eius significant, tam subiectum quam predicatum. Set idem per consimile in secunda questione primi capituli huius distinctionis: si aliquis in morte alicuius nominans eum, exclamet pro dolore "Johannes est mortuus," tam ipse proferens quam audientes intelligunt vocem sine inposicione noua, quia nullus dicit "inponatur hoc nomen Johannes cadaueri, vel preterito," ergo significabit sicut prius. Dicendum est quod, licet hec obiectio maxime occultet veritatem, tamen considerandum est quod dupliciter fit inposicio nominum—vno modo sub forma inponendi vocaliter expressa, vt communiter inponuntur nomina infantibus et aliis rebus, et sic non est hic inposicio facta: sed aliter potest fieri apud solum intellectum cogitantem de voce et significato, et sic proferens hanc oracionem "Johannes est mortuus" inponit nomen rei preterite vel cadaueri, et ideo de necessitate renouatur, quam recipiunt audientes sicut proferens intelligit. Set [si] contra[1] dicatur quod nec proferens nec audiens percipiunt inposicionem renouatam nec de illa cogitant, dicendum quod ante oracionem hanc prolatam, "Johannes est mortuus," necessario datur nomen preterito vel cadaueri, set non

[1] "hoc" is written in the margin after contra.

percipitur actualiter in illa exclamacione, quia maior occupacio animi occultat minorem, sicut maior lux occultat minorem visui ut patet de luce solis, quod occultat lucem stellarum die, et ideo, cum animus proferentis occupetur principaliter circa sensum plene oracionis exprimentis dolorem, non percipit expresse renouacionem inposicionis, cum omnibus accidat, et quilibet experitur quod homines faciant vel dicant aliqua, et illa non percipiunt propter fortiorem animi occupacionem, ut nimium gaudentes vel admirantes vel dolentes [vel] timentes vel studio magno circa aliquod occupati faciunt et dicunt alia circa que iterum occupati[1] aliqua[2] non advertunt propter maiorem occupacionem circa alia.[3] Si eciam obiciatur quod viator extraneus videns circulum vadit ad tabernam vini, et, licet non sit ibi vinum, tamen circulus fuit ei signum, igitur siue sit vinum siue non, circulus remanet in racione signi, ergo similiter erit de voce; dicendum est quod non manet eadem significacio, nec inposicio, set viator ignorans absenciam vini ymaginetur vinum in taberna, et vino ymaginato, licet falso, stat sibi circulus[4] pro signo noua institucione sua; et ideo racio signi renouatur, et sic est de voce, et omnibus signis. Set nunc considerandum est quanta insania feruntur qui negant veritatem istius problematis, autoritate falsa inuentoris huius mendacii seducti, et tanquam tempestate delati ad saxum inherescunt, et consuetudine alteratam habentes mentem non possunt consentire racioni, et a veritate se nudos profitentur qui [in] multitudine pessima interprete[5] veritatis se armant. In prima parte huius operis per sentencias declaratum est omnium sapientum, ex quibus causis ducti fingunt quod non discutiunt nec disputant de hoc ad utramque partem, [et] probant quod vox non potest cadere a sua significacione, set hoc supponunt tanquam radicem infinitorum que estimant verissima cum sint falsissima, ut quod homo est animal nullo existente, et quod Cesar sit homo, et quod Christus in triduo fuit homo, et alia innumerabilia erronea; sicut ex precedenti radice sua falsissima quod nomen significat aliquid com-

[1] R. occupi. [2] R. que. [3] R. orca aliquod.

[4] R. scit sibi circulum.

[5] R. interpreti. The reference is to passages from Pseudo-Chrysostom and Seneca, quoted in Part i., cap. 2.

mune enti et non enti eliciunt mendacia pene infinita, quorum reprobacio deinceps per totum corpus istius libri euidenter patebit.

CAP. VI.—*Capitulum sextum huius distinctionis prime de equiuocis, et analogicis, scilicet de modis equiuocationis et analogie.*

Expositis difficultatibus circa vnuioca quomodo significant, in hoc capitulo dicendum est de significacione equiuocarum (*sic*) et anologorum (*sic*) [et] de modis eorum, in quorum assignacione magna[1] est vtilitas tam in theologia quam in philosophia, et maxime difficultates soluuntur. Et non oportet magnam disputacionem facere ad vtramque partem, quia, certificata veritate in hiis leui declaracione, excluditur omnis dubietas simul cum superfluitate.[2] Aristoteles autem pluries loquitur de equiuocacione et anologia, set nunquam colligit omnes modos simul, quamuis ex dictis eius in diuersis locis sue philosophie eliciam omnia hic necessaria. Scimus igitur quod in omni equiuocacione est diuersitas significatiuorum : quot modis igitur est diuersitas, tot modis potest esse equiuocacio, secundum quod dicit in topicis : " quamcumque differenciam[3] invenimus, manifestum est quoniam multipliciter dicitur ".[4] Potest igitur diuersitas inueniri, ubi nulla est conveniencia absoluta inter[5] relata, ut inter ens et non ens, ut probatum est in capitulo quarto. Quapropter, cum hoc sit maxima diuersitas, maxima[6] est equiuocacio, et ideo hic est principalis modus, et principalis equiuocacio.[7] Secundo considerandum[8] quod potest esse diuersitas absoluta[9] penitus inter aliqua, et tamen est aliqua conueniencia in relacione, vt inter Creatorem et creaturam. Nichil enim commune absolutum participant, set tamen creatura habet comparacionem ad Creatorem, et est vestigium eius, et effectus ; et sic illa, que ponuntur de Creatore et creatura, ut ens et vnum et bonum et verum et substancia et essencia et huiusmodi multa dicuntur isto modo equiuoca. Et ad hunc modum reducuntur alia exempla, ut illa que dicuntur de decem predicamentis, scilicet[10] quedam predic-

[1] R. mangna. [2] So O. R. has " firtate ". [3] R. differentia.
[4] *Top.* I. 18, p. 108, *b*, 2-4 (?). [5] R. ut. [6] R. maxime.
[7] R. equiuicacionis. [8] R. consido. [9] R. absoluto. [10] R. sicut.

torum, ut ens et vnum et aliquid et res et creatura et bonum, et verum et finitum, et limitatum in natura, et huiusmodi, quia x predicamenta conueniunt in aliquo absoluto communi eis vniuoce, set tamen ordinem habent ad inuicem, et accidentia[1] sunt effectus et insunt substancie, et[2] ponuntur de ea, et insunt ei, et in multis modis comparantur ad eam. Et sumo hic ens et vnum et huiusmodi pro significatis secundis, scilicet pro re subtracta vnitati et entitati; quia primum significatum in hiis, quod est vnitas et entitas, sunt communia substancie et accidenti; sicut accidencia sunt communia multis subiectis, vt album et nigrum possunt accipi quantum ad qualitates ipsas vel quoad rem subiectam.[3] Set hic est difficultas magna et prolixitas vehemens, et copiosa discussione [digna] que in sequentibus capitulis explicabuntur. Sunt eciam alia exempla istius modi equiuocacionis, vt in equiuocacione sani, quod formaliter dicitur de animali ostensiue vel indicatiue de vrina, effectiue de medicina, conseruatiue de dieta. Et sic de multis que dicuntur diuersis modis, ubi omnia referuntur ad vnum, sicut hic tria referuntur ad primum, et sunt diuersa significata secundum se, sicut in omnibus ubi dicitur aliquid formaliter[4] vel effectiue, sicut homo dicitur calidus formaliter, set piper et zin[f. 83]ziber[5] effectiue, et alia infinita. Similiter sol dicitur calidus a naturali potencia in secunda specie qualitatis, et ignis calidus dicitur ab habitu in prima specie vel tertia; et similiter homo dicitur piger formaliter, et tempus turbidum et yemale dicitur fixum effectiue, quia facit pigros, saltem occasionaliter; et mors dicitur pallida quia facit pallorem. Et inter cetera vnitas dicitur vna, et bonitas bona, et veritas vera, set homo dicitur bonus et vnus et verax sub alio sensu. Vnum tamen ad aliud reducitur: homo enim dicitur vnus formaliter, vnitas dicitur vna quia facit vnitatem in rebus, et sic de aliis. Si tamen alius sensus possit et debeat esse, patebit in sequentibus capitulis euidenter. Adhuc est speciale exemplum de voce[6] que dicitur de materia et forma: inpossibile enim est quod aliquid sit commune vniuocum illis, quia Aristoteles dicit secundo

[1] R. accedentia. [2] R. et et. [3] R. subtractam.
[4] R. formatur. [5] So O. R. inziber. [6] R. v^a.

metaphysice: materia est alia ab essencia cuiuslibet forme,[1] et non est differencia perfecta [2] in creaturis nisi inter formam et materiam: omnes enim forme accidentales et substanciales aliquo modo conueniunt in racione generali forme, set materia non communicat cum aliqua forma. Et omnes alie conposite substancie communicant in genere generalissimo, et ideo solum est perfecta [3] diuersitas in creaturis inter materiam et formam. Propter quod nulla conueniencia absoluta potest esse, relat[iv]a tamen conueniencia est inter illas, quia materia est in potencia [4] ad formam, et forma est actus materie, et ideo mutuo ad se referuntur, et inferunt se mutuo; vt si materia est, forma est, et e contrario, quia nec materia potest esse per se, nec forma aliqua in creaturis. Nam forma accidentalis requirit materiam subiectam, forma substancialis similiter; quia nulla substancia creata est pura forma nec pura materia, vt demonstrabitur inferius, licet aliquis de fictis autoribus, licet famosus, estimat substancias spirituales ut angelos et animas esse puras formas, cuius posiciones et modi ponendi et raciones euacuabuntur posterius suis locis.[5] Hii ergo duo modi equiuocacionis predicti [6] nullam convenienciam absolutam habent, licet primus nec habeat conuenienciam relativam,[7] sicud nec absolutam; set secundus habet convenienciam relativam,[7] vt expositum est. Possumus inuenire differenciam minorem cum aliqua [8] absoluta conveniencia, ubi tamen nichil commune a parte rei predicatur vniuoce de significatis, ut substancia predicatur de materia et forma et conposito. Conuenit enim materia omni conposito, et forma similiter, quia sunt partes eius, et de sua essencia; et tamen sola vox sine aliquo communi predicatur de eis et conposito; quia substantia que est genus generalissimum predicatur de conposito, sed non de materia nec forma, quia illud genus est conpositum ex materia et forma, ut probabitur inferius. Conpositum vero nomine suo non potest predicari de simplici, et ideo sola vox est communis conposito et simplicibus partibus

[1] No such passage in this book. Bacon seems to be giving the general purport of *Met.* vi., ad init.

[2] So O. R. perfidā.

[3] R. persidā.

[4] R. inpoª (inposita?).

[5] The reference is to St. Thomas Aquinas.

[6] R. predicta.

[7] R. relatam.

[8] MSS. alia.

eius. Solum vero est vox equiuoca ad partem essencialem et totam, set totum universale et partem subiectiuam, hoc eodem modo equiuocacionis, vt relacio eius est genus generalissimum in hoc predicamento, et species specialissima opposicionis dicitur relacio: et inpossibile est quod aliqua res communis vniuoce [sit generi] generalissimo et alicui speciei; tunc esset aliud genus generalius[1] quam sit generalissimum, quod est impossibile. Et similiter potest esse in multis aliis, quod voces sunt ad placitum. Quarto, possumus videre iterum[2] aliam maiorem convenienciam absolutam quam prius, vt latent equiuocaciones in genere, sicut Aristoteles dicit septimo physicorum:[3] ubi significata communicant in aliqua natura radicali, licet illa descendens in illa varietur secundum esse varia; vt essencia generis secundum se est vna radix variabilis in diuersas species, non secundum differencias[4] accidentaliter conpletas, set etiam antequam intelligitur in illas, vt essencia similis in semine equi producta et in semine asini est vna radicalis essencia, set tamen esse varia habet antequam deducatur hec essencia in differencias, et ita esse sunt essencialia; propter quod essencialiter variatur hec radicalis essencia generis. Quod attendens naturalis philosophus dicit quod genus est equiuocum, set logicus considerans non ita profunde, quia[5] antecedens relacio radicalis est essencia absque illa essencia varia, dicit, quod genus dicitur vniuocum. Et quintus modus quando adhuc maior est ydemptitas, quoniam eadem res potest significari diuersis modis,[6] ut "amans illius" nomen est, "amans illum" participium est docente Prisciano; set constat quod eadem res significatur per hoc nomen amans, et per hoc participium amans, et per hoc verbum amo, quia partes oracionis cognate[7] significacionis non distinguuntur penes significata, set penes modos significandi, vt dicit Priscianus, sicut ita de quo exemplificatum est, et tamen equiuoca est, quando vox eadem significat

[1] MSS. generalissimum.

[2] MSS. inter.

[3] *Phys.* vii. 4, p. 249, *a*, 20-25 (Lect. 8). But perhaps Bacon was also thinking of *Anal. Post.* ii. 13, p. 97, *b*, 30.

[4] R. secundum per differencias.

[5] R. set.

[6] R. diuersi modis.

[7] R. cognite.

participium et nomen, quod predicatur per sextum modum equiuocacionis, vt maxima est ydemptitas significatorum que potest esse, quia idem nomen potest sumi equiuoce per casuum diuersitatem, vel aliorum accidentium, quia accidentia sunt modi significandi accidentales, vt "quicumque sunt episcopi sunt sacerdotes: isti asini sunt episcopi, ergo isti asini sunt sacerdotes". Nullus puer qui summulas suas audierit ignorat quando hic est equiuocacio penes casus: si ergo potest fieri equiuocacio penes modos accidentales significandi, multo fortius penes modos essenciales significandi; quia maior est diuersitas penes modos essenciales significandi, per quas distinguntur partes oracionis; ergo maior racio equiuocacionis. Et ideo inter amans nomen et participium est equiuocacio in quinto modo equiuocationis. De modis vero equiuocacionis inpossibile est quod vlterius inveniatur alius modus proprius, quia sextus modus minimam habet differenciam que potest inveniri; et ideo, cum minor non potest esse differencia, non est vlterius equiuocacio: et hoc est vnum de modis propriis equiuocacionis. Potest tamen vnus modus esse inproprius, vt in transitiue[1] positis et figuratiuis, vt "pratum ridet". Et "quid faciat letas segetes," ut Georgica Virgilii incipiunt,[2] set transponuntur vocabula ad bonitatem et fecunditatem et pulcritudinem pascui segetum.

De modis vero analogie expediam breuiter, dicens quod omnes modi equiuocacionis sunt modi analogie secundum primum modum equiuocacionis; quia, cum analogia grece sit proporcio, et comparacio latine, ut ait Tullius[3] et notum est scientibus aliquid de grece, ideo cum in primo modo equiuocacionis non sit aliqua comparacio significatiuorum, ut expositum est, non est aliquis modus analogie. Set cum in omnibus aliis modis est comparacio et proporcio significatiuorum, ut patet ex dictis, in omnibus illis est analogia. Est eciam analogia ubi non est equiuocatio, ut in ente et vno sumitur si considerentur secundum significata prima; vt significet [ens] existenciam accidentalem, et vnum vnitatem. Nam proprius[4] conveniunt sub-

[1] R. intransitive positus et figuratus.
[2] *Georg*. i. 1.
[3] Timæus 13.
[4] R. per prius (and below).

stantie quam accidenti[ibus], set illud patebit in sequentibus capitulis.[1] Et secundum methaphysici considerationem in decimo libro omne genus dicitur proprius de specie nobiliori quam de alia, ut animal de racionali quam irracionali; [pro]prius dico quantum ad dignius esse et dignitatem nature; licet secundum naturalem philosophiam equiuocacio est similis cum hoc et secundum logicum vniuocacio, secundum diuersas eorum consideraciones.[2]

[1] R. capituli.

[2] There is a late note in R. "Quaere residuum, p. 221" (p. 221 = f. 113 of the MS.). The treatise referred to is the version of the *Communia Naturalium* (?) beginning 'Ostensum est' (see Appendix).

APPENDIX.

ROGER BACON'S WORKS.

ANYONE who has attempted to compile a bibliography of Roger Bacon will be inclined to echo Leland's saying, "that it is easier to collect the leaves of the Sibyl than the titles of the works written by Roger Bacon". The difficulty is partly due to Bacon's habit of rewriting his treatises "four or five times" before he could get a satisfactory version, and to his using the same material over and over again in different connexions. The same works recur with different titles and different *incipits*, and different works with the same title; and the number of fragments and unfinished works is enormous. Many spurious writings are attributed to Bacon, and some genuine ones are hidden under other names.

The following bibliography is based on the account of Bacon's works given in *The Grey Friars in Oxford*, pp. 195-211 (1892). I have endeavoured to incorporate the results of recent researches so far as they are available in print; and I am also indebted to Mr. Robert Steele for valuable information regarding Bacon MSS.; to Mr. Gilson for the use of the proofs of his forthcoming catalogue of the Royal MSS.; to the Rev. H. M. Bannister, Father Michael Bihl, Mr. Madan and Father Ubald d'Alençon for notes on various MSS. I should be grateful for additions and corrections, which might be incorporated in a supplement or a future edition and make this list of Bacon's works more complete and more worthy of its subject.

A. G. LITTLE.

RISBOROUGH,
SEVENOAKS.

1*a*. *Quaestiones super libros* i.-v. *Physicorum Aristotelis.*

Inc. tabula: 'Incipiunt questiones naturales et primo questiones libri Phisicorum Aristotelis'. *Inc. lib.* i.: 'Questiones primi Phisicorum Rogeri Bachun. Quoniam quidem intelligere, etc. Hic primo queritur utrum de corpore mobili.'

MS.: Amiens 406, f. 1 (sec. xiv.).

Described by Victor Cousin in *Journal des Savants*, 1848, pp. 459-72.

1*b*. *Quaestiones super libros* i.-vi. *Physicorum Aristotelis.*[1]

"Incipiunt questiones supra librum Phisicorum, a magistro dicto Bacuun. Quoniam intelligere et scire circa omnes scientias accidit, etc. Iste liber, cujus substantivum est corpus mobile. Queritur primo utrum de naturalibus possit esse scientia."

MS.: Amiens 406, f. 29-56, 63^{v}-73 (sec. xiv.).

Described by V. Cousin.

2. *Quaestiones super librum de Plantis* (or *Vegetabilibus*).

"Incipiunt questiones supra librum de plantis, a magistro Rogero Baccon. Tria ut ait Empedocles in tota rerum varietate principia, etc. Supposito quod hec scientia de corpore mobili, animato, composito."

MS.: Amiens 406, f. 57 (sec. xiv.).

Described by V. Cousin.

3. *Quaestiones in Aristotelis Metaphysica.*

"Incipiunt questiones supra primum Metaphysice, a magistro Rogero Bacco. Omnes homines natura scire desiderant, etc. Dubitatur de ista scientia, primo de substantivo."

MS.: Amiens 406, ff. 78-113, 74, 166-76.

Described by V. Cousin.

Another series of questions on books 1, 2 and 4 of the

[1] Digby MS. 150 (sec. xiii. ex.) contains two treatises ascribed in later hands to Roger Bacon. The first is the *Summa philosophiae naturalis* of Albertus Magnus, the second is an analysis of the eight books of the Physics of Aristotle (*inc.* "Naturalis philosophie principales partes sunt viii"), ascribed to Bacon in two hands of the 15th and 16th centuries.

Metaphysics is contained in the same MS., f. 176^v *seq.*: "Hic incipiunt questiones supra primum Metaphicice Aristotelis. Omnes homines . . . Queritur hic primo utrum hec propositio". It is not clear whether these are by Bacon.

4. *Quaestiones super librum de Causis.*

   Inc.: "Supra librum de causis. Queritur circa influentiam causarum, utrum omnis agat per influentiam."

   MS.; Amiens 406, f. 114. Incomplete: a quire is missing between ff. 117 and 118.

   Described by V. Cousin.

5. *Elementary Treatise on Logic.*

   "Prima petia magistri Petri Bacun.[1] Quoniam ignoratis communibus necesse est artem ignorare."

   MS.: Amiens 406, ff. 130-52.

   Described by Victor Cousin as a "traité de logique à l'usage de la jeunesse . . . sans aucun titre et sans nom d'auteur. On lit seulement en tête: Prima pecia magistri S.H."

   (Peterhouse MS. 195 (sec. xiv.) at Cambridge formerly contained 'Logica fratris Rogeri Bacon'.)

6. '*Summa M. Rogeri Bacon de sophismatibus et distinctionibus.*'

   Inc.: "Potest queri de difficultatibus accidentibus".

   MS.: Bodl. Digby 67, f. 117 (sec. xiii.): fragment.

7. '*Questiones naturales mathematice astronomice, etc.*'

   'Expliciunt reprobationes Rogeri Bacon.'

   MS.: Paris: Bibl. Nat. 16089, f. 93 (secs. xiii.-xiv.).

8. *Tractatus ad declaranda quaedam obscure dicta in libro Secreti Secretorum Aristotelis.* *Inc.*: "Propter multa in hoc libro contenta qui liber dicitur Secretum Secretorum Aristotelis sive liber de regimine principum".

   MSS.: Oxford: Bodl. Tanner 116, f. 1 (sec. xiii. ex.); the same MS. f. 16, contains the *Secretum Secretorum* attributed to Aristotle "cum glossa interlineari et notis Rogeri Bacon".—Corpus Chr. Coll. 149 (sec. xv.).

[1] *Sic* in E. Coyecque's Catalogue (1893).

Cambridge: Trin. Coll. 1036 (sec. xv. ex.), f. 1-20b; f. 25-130d, "expl. liber secreti secretorum Arist. . . . qui liber intitulatur liber decem scienciarum cum quibusdam declaracionibus Fr. Rogeri Bacun de ord. minorum".

Cf. Bridges, I. 10, note, 258, note, 403, note, II. 64.

9. *De somno et vigilia* (two books).

MSS. Bodl. Digby 190, f. 77 (sec. xiv. in.). *Inc.:* 'De somno et vigilia pertractantes Perypateticorum sentenciam potissime sequemur' (name of author added in hand of 17th cent.).

Cambridge: Univ. Libr. Ii. vi. 5, ff. 85b-88 (sec. xiii.), *Roger Bacon de somno et vigilia; Inc.:* 'Sompnus ergo et vigilia describuntur multis modis'.

(*Tractatus de sompno et vigilia*, by Roger Bacon, was contained in a MS. of St. Augustine's Abbey, Canterbury, No. 843, ed. M. R. James).

10. *Computus naturalium*, a treatise on the calendar, in three parts, containing respectively 21, 20, and 8 chapters, written A.D. 1263. *Inc.* '*Omnia tempus habent*, etc., ut Salomon testatur. Igitur omnia sive sint producta'. *Expl.* 'ut simplices instructionem et sapientes pluris investigationis capiant occasionem'.

MSS. British Museum: Royal 7 F. viii., f. 99 (sec. xiii. ex.)[1]

Oxford: Bodl. Selden supra 79, f. 150 (excerpta). Univ. College, 48 (sec. xvii.).

Douai 691, § 2 (sec. xvii.).

Summary printed by E. Charles, *Roger Bacon*, pp. 335-8.

This is perhaps the work mentioned in the Catalogue of the Austin Friars' Library, York, No. 196, as 'tractatus Rogeri bacon de tempore' (ed. M. R. James, in the *Fasciculus Joanni Willis Clark dicatus*).

[1] The following article in this MS., f. 164, is a "Calendar beginning with September, showing lunar conjunctions, etc., for four cycles of nineteen years, beginning 1254. The canon below is very incorrectly transcribed, but fixes the date as 1268. Among the very few saints inserted are SS. Francis, Denys and Germain" (Mr. Gilson's Catalogue).

11. *De termino Paschali*, an earlier work, to which Bacon refers in the *Computus naturalium* (Charles, p. 78: "In praecedenti opere ubi de termino Paschali inquisivimus," *Computus*, cap. iii.) does not seem to be extant.

12. *De cometis*.

Inc. "Occasione cuiusdam comete que nuper apparuit".

MS. Florence: Riccardi 885, f. 113-114.

(*Cf.* Bridges, I. 385.)

Cf. a passage on the comet of 1264 inserted in Royal 7 F. vii. f. 109^b and re-copied in Royal 7 F. viii. f. 11, intended for insertion at the end of Part I. cap. ii. of the *De Multiplicatione Specierum*. *Inc.* "Deinde queritur an aliquod agens": *expl.* "spirituali et corporali" (not printed by Bridges, II. 431).

13. *Opus Majus*: written A.D. 1266-67: 7 parts. *Inc.* "Sapientiae perfecta consideratio consistit in duobus".

MSS. of the whole work or of several parts:—[1]

British Museum: Cotton Jul. D. v. f. $71\text{-}151^b$ (sec. xiii. ex.), injured by fire, contains Parts I., II. (f. 83), III. (f. 91^b), and a large portion of Part IV. (f. 108^b); ends "et ideo philosophi (universaliter dampnant)," Bridges, I. 241.—Add. 35253: a photographic copy of Vatican MS. (see below).

Oxford: Bodl. Digby 235 (sec. xv. et xiv.), containing Opus Majus, Parts I.-V., Tractatus de Multiplicatione Specierum, Opus Majus, Parts VI., VII.

Dublin: Trinity College 381 (sec. xvi. ex.), copied from Digby MS.

Cambridge: Trinity College 1294 (sec. xvii.), copied from Dublin MS.

Rome: Vatican 4086, f. 1-74 (sec. xiv. in.), containing

[1] Renan, *Averroès et l'Averroisme*, p. 263, quotes a passage from *Opus Tert.* cap. 23, which he says was found, in almost identical words, in a copy of the *Opus Majus* belonging to the library of St. Gregory *in Clivo Scauri*. (*Cf. Archives des Missions*, etc., I. 377). Father Livarius Oliger, O.F.M., informs me that no MS. of Roger Bacon is mentioned in the catalogue of the St. Gregory MSS. which are now in the Biblioteca Nazionale at Rome; nor is it at St. Gregory's. It is probably identical with MS. Bibl. Nat. n. a. Lat. 1715, which, like many of the St. Gregory MSS., came originally from Venice.

Parts I., II., III. and IV. (except the astrological treatise beginning "Post locorum descriptionem," Bridges, I. 376-403). It ends 'principalem scripturam'; Bridges, I. 376. This closely resembles Cott. Jul. D. v., but is not a copy of it.

Paris: Bibl. Nat.: Nouv. Acq. Lat. 1715 (sec. xv.), a copy of Vatican MS. (?)—Bibl. Mazarine, 3488 (sec. xviii.).

PRINTED: Parts I.-VI., ed. S. Jebb, London, 1733: reprinted Venice, 1750. Parts I.-VII., ed. J. H. Bridges, 2 vols., Oxford, 1897, with a (3rd) supplementary vol., London, 1900.

MSS. of separate parts :—

I. On the four general causes of human ignorance. *Inc. cap. i.*, "Sapientiae perfecta consideratio".

MS. Brit. Museum: Cott. Jul. F. vii. f. 186-200 (sec. xv.). The leaves have been misplaced in binding; the work ends with the words 'facilius adimplere' on f. 196b (Bridges, I. 32, III. 35). Fol. 197a begins: 'manifestis. Quemadmodum' (Bridges, p. 6); f. 200 ends with the words 'sicut ipsemet confitetur et' (Bridges, p. 15).

II. On the connexion of philosophy with theology. *Inc. cap. i.*, "Relegatis igitur [in infernum] quatuor causis".

III. On the study of language or *De utilitate grammaticae*. *Inc. cap. i.*, "Declarato igitur quod una est sapientia."

IV. On mathematical science, or *De utilitate mathematicae*. *Inc.* "Manifestato quod multae praeclarae radices sapientiae".[1]

The part contains several sections: (*a*) *Utilitas mathematicae in physicis*, in 4 'distinctiones,' Bridges, I. 97-174; *inc. ut supra.* (*b*) *Utilitas mathematicae in divinis*, Bridges, I. 175-238; *inc.* 'Postquam manifesta est necessitas'. (*c*) *Judicia astronomiae*, Bridges, I. 238-269; *inc.* 'Manifestato quomodo mathematica

[1] In Jul. D.v. and Vat. 4086 the transition from Part III. to Part IV. is not clearly marked. See Bridges, III. pp. viii., ix.

necessaria est'. (*d*) *Correctio calendarii*, Bridges, I. 269-285; *inc.* 'Sed haec hactenus. Nunc vero inferam secundum' [*cf. Op. Tert.* cap. 68, p. 274]. (*e*) *Geographia*, Bridges, I. 286-376; *inc.* 'Postquam declaratum est quomodo mathematica'. (*f*) *Astrologia*, Bridges, I. 376-403; inc. 'Post locorum descriptionem'.[1]

MSS. Brit. Museum: Royal 7 F vii. f. 2 (sec. xiii. ex.): 'Pars quarta compendii studii theologie.' *Inc.* 'Manifesto (*sic*) quod multe,' etc. *Expl.* f. 62 'principalem scripturam'. *Ibid.* f. 68, 'Tractatus de corporibus celestibus' (15th century title); *inc.* 'Post locorum descriptionem' (*i.e.* Art. *f* above).

Cotton Tib. C. v. f. 49-119 (sec. xv.): 'Incipit 4ta pars maioris operis fratris Rogeri Bacon in qua ostenditur potestas mathematice in scientiis et rebus mundi.' *Inc.* 'Manifesto (*sic*) quod multe'. *Expl.* 'principalem scripturam,' Bridges, p. 376.

Cotton Otho D. 1, f. 209-221 (injured by fire), the section 'Geographia,' Bridges, I. 286-376, ending 'de locis et gentibus totius habitabilis'.

Cotton Julius F. vii. f. 178-182 (sec. xv.): 'Declaratio effectus vere mathematice in 4ta parte maioris operis fratris Rogeri Bacon distinctione 5ta inter alia sic declarat. Veri mathematici considerans (?) scitus et loca planetarum' (not identified): 'De moribus hominum secundum complexiones causatas a constellationibus supracelestibus prout allegat doctor Rogerus Bacon in quarta parte majoris operis . . . ut in fine capituli 4ti et in principio cap. 5ti. . . . Complexiones locorum—maxime a juventute,' Bridges, I. 137-139, 'et nunc ponam unum exemplum'—'tam sanis quam infirmis,' Bridges, I. 139-143.

[1] This section (*f*) is not found in Vat. 4086, nor in Tib. C. v., but occurs in Digby 235. The substance of it agrees with what is said in *Opus Tert.* (Brewer, 96-9) of the section 'De Caelestibus' in the *Opus Minus*, for which work it was probably written.

Add. 8786 (sec. xiv.), f. 12^b-13^b, containing cap. xv. and part of cap. xvi. of Dist. iv., Bridges, I. 167-172.

Sloane 2629, f. 17-53^b (sec. xvii.): 'Incipit tractatus fratris Rogeri Bacon de utilitate astronomie'. 'Superius quidem dictum est—plura conscribere'. Bridges, I. 377-403.[1]

Lambeth Palace, 200 (sec. xv.): De arte mathematica.

Oxford: Bodl.: Digby 183, f. 49 (sec. xiv., ex.), fragm. beginning 'et virtutis a loco,' and ending 'plane vel concave non,' Bridges, I. pp. 111-156.—E. Musaeo 155, p. 185 (sec. xv. in.): 'Pars quarta in qua ostendit potestatem mathematicae,' etc.—Laud. Misc. 674 f. 7 (sec. xv.): 'Nota de correctione Calendarii ex Rogeri Baconis libro ad Clementem papam'.—Univ. Coll. 49.

Cambridge: Corpus Christi Coll. 426 (sec. xvi.): Tract. fratris Rogeri Bacon in quinta parte mathematicae de situ orbis.—Peterhouse 277 (sec. xv.), f. 185^b: 'De utilitate arismetrice per Rogerum Bacon. De utilitate arismetrice potest sumi per infra scripta' (!)—'10° luna 11° mercurius. Et sic est finis huius operis Magistri Rogerii bakonis ut patet in sua summa ad Clementem,' Bridges, I. 224-236.

Paris: Bibl. Nationale 7455, A. (sec. xv.): 'De utilitatibus scientiae mathematicae verae.'

PRINTED by Combach, Frankfurt 1614, under the title: *Specula mathematica in quibus de specierum multiplicatione . . . agitur*, etc., as far as Bridges, p. 174 (*i.e.* § a, *Mathematicae in Physicis Utilitas*).

V. Optics, or *De Scientia Perspectiva*. *Inc. cap. i.* "Propositis radicibus sapientiae".

[In some MSS., and in the edition of 1614, this part begins: 'Cupiens te et alios,' a preface perhaps to a later copy of the Perspectiva, addressed to some person unknown, not to the Pope. See Bridges, II. 1, note.]

[1] Cf. Bale, Index Script. Brit., p. 396: *Introd. in Astrologiam; inc.* 'Fusius quidem,' etc.: 'fusius' is a mistake for 'superius'.

Divided into three parts: (1) explains the general principles of vision, and has ten *distinctiones: inc. ut supra;* (2) deals with direct vision, and has three *distinctiones: inc. cap. i.*, "Et quoniam eadem est scientia oppositorum"; (3) deals with reflected and refracted vision, and has three *distinctiones: inc. cap. i.*, "Habito de visu facto".

MSS.: Brit. Museum:[1] Royal 7 F. viii. (sec. xiii.), f. 47: 'Tractatus perspective habens tres partes, prima est de communibus'. *Inc.* 'Hic aliqua dicenda sunt de perspectiva. Autores quidem multi tractant' (*i.e.* in the preface beginning elsewhere, "Cupiens te et alios"); *expl.* 'non posset sustinere'.

Cotton Fragments IV., f. 23-6 (sec. xiv.): *Inc.* 'Sciendum vero quod visio': *expl.* 'speculo' (*i.e.*, Bridges, II. 148-63).

Sloane 2156, f. 1 (A.D. 1428): 'Hic incipit tractatus perspective . . . Hic aliqua dicenda sunt.'

Sloane 2542, f. 1-55 (sec. xv), imperfect.

Harl. 80, f. 60b (sec. xv.): "Tractatus perspective habens tres partes . . . Propositis radícibus."

Add. 8786, f. 84-107: 'Incipit tractatus de modo videndi. Quoniam precipua delectatio' (*i.e.* Bridges, II. p. 2, l. 4).

Oxford: Bodl.: Bodley 874, pp. 1-71 (sec. xv.): *Inc.* 'Cupiens te et alios'; *expl.* 'aliqualiter sustinere'. —Digby 77, f. 1 (sec. xiv.): *Inc.* 'Cupiens te et alios'.—Digby 91 (sec. xvi.).—Corpus Chr. Coll. 223, f. 3 (sec. xv.).

Cambridge: Magdalene College, Pepysian Library, 1207 (sec. xv.).[2]—Trinity College 1418, f. 66 (sec. xv.):

[1] The treatise 'de visu et speculis' in Royal 7 F. vii. f. 64 (*inc.* 'De speculorum miraculis . . . Nichil ab oculo') is not by Bacon, but probably by Henry of Southwark. (Is Assisi MS. 673, *Pars Perspective*, *inc.* 'Prima pars perspective que est de radio directo,' by Bacon or Pecham?)

[2] I am indebted to Mr. S. Gaselee, Pepysian Librarian, for the following notes on this MS., which is very badly written. It was obtained by Dr. Dee at Oxford in 1559, and was perhaps intended as a working copy for the Oxford schools.

Inc. 'Prepositis iudicibus (!) sapiencie'; *expl.* f. 96b 'multum (!) nativitatis sue in speculo, etc.' (Bridges II. 163).

Paris: Bibl. Nat. 2598, f. 57 (sec. xv.): Nouv. Fonds Lat. 10260 (sec. xvi.).

Florence: Riccardi 885, f. 144-98 (sec. xiv.). *Inc.* 'Cupiens te et alios'. [*Cf. Arch. Franc. Hist.* iii. 554, where reference is made to a 15th cent. copy of this work at Toledo, mentioned in *Revista de Archivos Bibliotecas y Museos*, An. III. n. 6, ser. i.]

Milan: Ambrosiana, R. 47 sup. f. 61 (sec. xiii.): *Inc.* 'Propositis radicibus'.

Rome: Vatican Palat. 828, f. 49 (A.D. 1349). *Inc* 'Propositis radicibus sapientie'. Vat. Lat. 3102 (sec. xv.) f. 1-27: *Inc.* 'Nunc aliqua sunt dicenda'. *Cf.* Vat. Lat. 2975 (sec. xvi.), Tract. perspect. a fr. Rog. Baco: *Inc.* "Quoniam inter gradus sapientiæ'.

Venice: St. Mark, Lat. vi. 133 [Vol. IV. Cl. xi. Cod. 10] (sec. xiv.): *Inc.* 'Cupiens te et alios'.[1]

PRINTED by Combach, Frankfurt 1614, under the title *Rogerii Baconis Angli . . . Perspectiva.* *Inc.* 'Cupiens te et alios'.

VI. *Experimental Science.* *Inc. cap. i.* "Positis radicibus sapientiae Latinorum".

MSS. Brit. Museum: Sloane 2629 (sec. xvii.), f. 2-16: 'Tractatus fratris Rogeri Bacon extractus de VI.a parte compendii studii theologie quem librum fecit ad instanciam Clementis et est tractatus de

Title: 'Tractatus perspective habens tres partes: prima est de communibus ad ceteras 2as: secunda pars descendit in speciali ad visionem rectam principaliter 3a ad reflexam visionem.' [*Inc. prol.*] 'Nunc igitur ad instanciam tuam quedam medullaria' [*i.e.* in the letter elsewhere beginning 'Cupiens te'.] [*Inc. Opus*] 'Quoniam precipua delectacio nostra est in visu' [*i.e.* Bridges, II. p. 2, l. 4]. *Expl.* 'languide conspicientibus rem visum. Possunt etc. sicut (?) superius habetur [*cf.* Bridges, II. p. 159, l. 1]. *Explicit perspectiva fratris Rogeri Bakun.*'

[1] The same MS. contains (f. 50-72) *Tractatus de velocitate motuum*; *inc.* 'Omnis racionabilis opinio de velocitate,' two treatises—(1) algorismus proportionum, (2) de quibusdam subtilibus inferioribus ex praedictis. Is this by Bacon? or William de Heytesbury? (cf. Bruges MS., 497).

materia prius tractata et extrahitur de capitulo quod intitulatur de scientia experimentali: et si quis velit pleniorem habere doctrinam et responsionem ad difficultates que possunt in contrarium, querat scripta principalia, viz. librum vi scientiarum et librum quem intitulatur compendium studii theologie et inveniet,' etc. *Inc.* 'Corpora vero Ade et Eve post peccatum' (*Opus Minus*, p. 373)—*expl.* 'et alibi multis modis, etc.' (*Opus Majus*, II. 204-13).

Oxford: Bodl.: Can. Misc. 334, f. 53, 'Alius tractatus ejusdem Fratris Rogeri extractus de sexta parte compendii studii theologiae'. 'Corpora vero—multis modis' (*ut supra*).—Bodl. 438, f. 29b-31b (sec. xv.), and Arch. Seld. B. 29, f. 39b (sec. xiv.), the same extract.—University College 49 (sec. xvii.).

Cambridge: Trinity College 1389 (sec. xv.), f. 39b: 'Alius tractatus eiusdem fr. Rogeri Bakon extractus de sexta parte,' etc. 'Corpora vero—multis modis (*ut supra*). (*Ibid.* 922, f. 56b (sec. xv.), contains an English translation of the same passage.) *Ibid.* 1119, f. 56b (secs. xvi., xvii.): 'Here followeth the first part of the great work namely the experimental science of Roger Bacon written to Clemens ye Pope'. 'Now that I have set forth ye votes (!) of the science of knowledge of the Latines in respect of toungs'. Ends unfinished, f. 68b.

Douai, 691, § 3 (sec. xvii.).

Rome: Vatican 4091 (sec. xvi.), contains cap. i.-vii. (*cf.* Bridges, III. pp. xii. 182). *Inc.* 'Positis radicibus'.[1]

VII. *Moral Philosophy.* *Inc.* "Manifestavi in praecedentibus quod cognitio linguarum". 6 parts: (1) duty to God, to neighbour and to self: (2) 'Secunda pars descendit ad

[1] This MS. Vat. Pal. 4091, ff. 49-88, copied in a late 16th cent. hand 'ex oper. perg.' presents a curious combination. It contains Part VI. of Opus Magnum 'habens 4 distinctiones et 1a habet 7 capita' (the 7th, on haloes, differs from Bridges, cap. vii.). The four distinctions are: f. 49 *de experientia in communi*: f. 62, *de potestate artis et naturae*: f. 71 *de retardanda senectute*: f. 88 *de mirabili artificio quod fit per lapidem magnetem.* (*Cf.* Duhem, *Opus Tert.* 137-157).

leges et statuta hominum inter se': (3) 'De regimine hominis in comparatione ad se ipsum': (4) 'consistit in persuasione sectae fidelis credendae et amandae et operibus comprobandae quam debet humanum genus recipere,' or the grounds for accepting the Christian religion: [(5) 'Quinta pars est de sectae jam persuasae et probatae exhortatione ad implendum in opere et ad nihil faciendum in contrarium, et hic exigitur modus praedicationis: (6) Sexta vero pars moralis philosophiae est de causis ventilandis coram judice inter partes ut fiat justitia: sed hanc solum tango propter causas quas assigno'.] Parts (5) and (6) are unknown; the description of them is taken from *Opus Tert.* cap. xiv.: *cf.* also *ibid.* p. 266, 304-8. A brief summary of them is contained in Prof. Duhem's *Op. Tert.* (see below). The last part (6) was never written: 'excusavi me ab expositione istius partis': Duhem, p. 179.

MSS. Brit. Museum: Royal 8 F. ii. (sec. xv.), f. 167. *Inc.* 'Manifestavi, etc.—eius quod est post se' (Bridges, II. 275); it includes Parts (1) and (2) and cap. i.-v. of Part (3).

This part, omitted by Jebb, was first printed by Bridges, II. 223-403. It was not printed at Dublin in 1860, but described by Dr. Ingram in a paper printed in Vol. VIII. of the *Proceedings of the Royal Irish Academy.*

14. *Tractatus de Multiplicatione Specierum. Inc. prol.* 'Postquam habitum est de principiis rerum naturalium'. *Inc. opus:* 'Primum igitur capitulum circa influentiam agentis habet tres veritates'.

A treatise on this subject was sent to the Pope in 1267: *e.g. Op. Tert.* p. 227, 'tractatus de radiis quem vobis misi separatim ab Opere Majori'; *ibid.* 230, 'in tractatu de radiis quem Johannes extra principalia opera deportavit'; *ibid.* 38, 'sed completiorem tractatum mitto vobis de hac multiplicatione'; *ibid.* 99, 'Tractatus de speciebus et virtutibus agentium quem

dupliciter misi vobis, et tertio modo incepi sed non potui consummare'. Either at this time or later it formed part of a larger work. At the beginning of the treatise, as printed by Jebb (p. 358) and Bridges (p, 408), are the words: 'Recolendum est igitur quod in tertia parte hujus operis tactum est, quod essentia, substantia, natura, potestas, potentia, virtus, vis significant eandem rem, sed differunt sola comparatione'. There is nothing about this in the third part of the *Opus Majus*, but it is found in the *Communia Naturalium*, to which Bacon refers elsewhere in the same treatise (Bridges, II. 424, 'ut prius in Communibus Naturalium demonstratum est'). The treatise was therefore included in a work of which the *Communia Naturalium* formed the third (or a portion of the third) part. This was the *Scriptum Principale* or *Compendium Philosophiae* (see below).

The versions of the *De Mult. Spec.* differ considerably, and the treatise is divided sometimes into six, sometimes into ten parts.

MSS.: British Museum: Royal 7 F. viii. (sec. xiii. ex.), f. 13-46b. *Inc.* 'Primum igitur capitulum'; *expl.* 'receperit'. This is followed by a passage marked *vacat*, which Bridges prints at the end of the treatise (pp. 551-52), and which is inserted in MS. Royal 7 F. vii. f. 109; *inc.* 'Sed hoc est intelligendum'. On the same leaf, 109b, is a passage for insertion in Royal 7 F. viii. f. 16, at the end of cap. ii. of the *De Mult. Spec.*, and recopied in 7 F. viii. f. 11 (not printed in Bridges, p. 431); *inc.* 'Deinde queritur an aliquod agens': *expl.* 'spirituali et corporali'.—Add. 8786, f. 21b-45b (sec. xiv.): *inc.* 'Postquam,' etc.—Sloane 2156, f. 40 (A.D. 1428): *inc.* 'Postquam,' etc.

Oxford: Bodl. Digby 235, f. 153 (sec. xv.): *inc.* 'Primum igitur,' etc.: inserted in *Opus Majus*.

Cambridge: Trin. Coll. 1294 (sec. xvii.).—Magdalene Coll., Pepysian Lib. 1207 (sec. xv.): *inc.* 'Species

multiplicata in medio aliunde vocatur similitudo agentis et ymago.' (*Cf.* Bridges, II. p. 409, l. 7.)

Dublin: Trin. Coll. 381 (sec. xvi. ex.), in *Opus Majus*.

Paris: Bibl. Nat. 2598, f. 21 (sec. xv.): *inc.* 'Postquam,' etc.—Mazarin 3488, p. 239 (sec. xvii.).

Bruges, 490 (sec. xiii.) called *Philosophia Baconis; inc.* 'Primum igitur'.

Douai 691, § 4 (sec. xvii.).

Milan: Ambros. R. 47 sup. f. 1: *De generatione (et corruptione) specierum: inc.* 'Postquam,' etc.

Venice: St. Mark's, Lat. vi. 133 [vol. IV. Cl. XI. cod. 10], (sec. xiv.): *inc.* 'Primum igitur'.

Vienna: Bibl. Palat. 5311, f. 101.

PRINTED by Jebb, between Part V. and Part VI. of *Opus Majus* (pp. 358-445): and by Bridges, at the end of *Opus Majus*, II. 407-552. Extracts from the prologue in Bridges, III. 183-85.

15. *Opus Minus*, written 1266-1267, was both an introduction and a supplement to the *Opus Majus*. It seems to have consisted of the following parts:—

i. Introduction or dedicatory letter. Bacon describes this in the *Opus Tert.* p. 7: "Primo igitur in Opere Secundo, secundum formam epistolae Marci Tullii post exilium revocati, . . . recolens me jam a decem annis exulantem quantum ad famam studii quam retroactis temporibus obtinui, . . . vestramque sapientiam admirans . . . ; secundo assurgens vestrae clementiae, exordium sermonis capiens, post pedum oscula beatorum, stylum altius elevando, propter vestram celsitudinem, sub his verbis incepi perorare: 'Cum tantae reverentiae dignitas sapientiae scaturiens plenitudine,'" etc. The introduction, therefore, began with some autobiographical reminiscences. This appears to be lost; but perhaps to it is to be referred the passage quoted by Anthony Wood from the *Opus Minus*: 'Praelati enim et fratres me jejuniis macerantes tuto custodiebant, nec aliquem ad me venire voluerunt, veriti ne scripta mea

aliis quam summo pontifici et sibi ipsis divulgarentur'.[1] The second part of the introduction, beginning with the words 'Cum tantae reverentiae,' etc., and quoted in the *Opus Tertium*, is probably the fragment discovered by Abbot Gasquet[2] in Vatican MS. 4086, and printed in the *Eng. Hist. Rev.* The earlier portion of this is almost identical with *Op. Tert.* pp. 7-12. The latter part is occupied by a brief summary of the *Opus Majus*, the sciences being treated in inverted order or according to their dignity, moral philosophy first.

ii. An addition *de notitia caelestium* was made to the section on Mathematics. This may have been identical with the treatise on astrology printed by Bridges (I. 376-403) at the end of *Opus Majus*, Part IV., beginning 'Post locorum descriptionem' (see p. 77 above). This treatise is not found in any MS. of the *Opus Majus*, except the Digby MS. (sec. xv.) and those copied from it.

A treatise on the same subject (*De Caelestibus*) is in Digby MS. 76, f. 36 (sec. xiii.). This seems to have formed part of the *Compendium Philosophiae* (see below), but it may have been incorporated first in the *Opus Minus;* on fol. 42 are the words: "et est nunc temporis scilicet anno domini 1266".[3]

iii. Practical alchemy 'in enigmatibus'.

iv. Notes on the chief points in *Opus Majus* to which Bacon wished to call the Pope's special attention, beginning with moral philosophy.

v. Treatise on the seven sins in theological study.

vi. Speculative alchemy or *De rerum generatione ex elementis*, inserted in the sixth *peccatum*.

[1] Wood, *Hist. and Antiq. of the Univ. of Oxford*, ed. Gutch, I. (1792), p. 338.

[2] Gasquet considers this fragment to be a complete introduction to the *Opus Majus*, distinct from the *Opus Minus*. This may be so, but I incline to think it is part of the *Opus Minus*. No further light is thrown on this point by the part of the *Opus Tertium* discovered by Prof. Duhem (see below).

[3] Duhem, p. 64, thinks that part of this treatise in *Opus Minus* is preserved in the last three chapters added to *De Caelestibus*, lib. ii. part v., in MS. Mazarin, 3576, i.e. *Comp. Philosophiae*, Vol. III. lib. ii. (see below).

vii. *Remedia studii.*

The fragment edited by Brewer *Op. Ined.* 311-390, from Digby MS. 218, includes a few pages of Part iii., all of iv., most of v., and part of vi.

The omission in Part vi. (Brewer, p. 375) on the prolongation of human life may be partly filled in from *Opus Majus*, Part VI. Exemplum ii. (Bridges, II. 205) where the passage 'Est autem . . . curabit et' occurs word for word. How much of *Opus Majus* was here inserted is doubtful; probably to the end of Exemplum ii.: 'et alibi multis modis' (Bridges, II. 213). Several MSS. quote the passage beginning 'Corpora vero Adae et Evae' (*Op. Min.* p. 373), and ending 'et alibi multis modis' (*Op. Majus*, II. 213).[1] The substance of some of the lost part of the *De rerum gen.* is contained in *Libellus de retardandis accidentibus senectutis* (No. 26). *Cf.* also the *Breve breviarium* below (No. 23).

MSS. Rome: Vatican 4086, f. 75^a-82^a (sec. xiv.); Part i.: *inc.* 'Sanctissimo patri Domino Clementi . . . Cum tante reverentie dignitas'.

Paris: Bibl. Nat. Nouv. Acq. Lat. 1715 contains the same letter as the Vatican MS.

Oxford: Bodl. Digby 218 (sec. xiv.), f. 57, imperfect: contains most of the work: the sixth part, on speculative alchemy, begins on f. 65: title in later hand, 'De rerum generationibus': *inc.* 'Hic autem volens ponere radicalem generationem rerum'.—Corpus Chr. Coll. 255 (sec. xvi-xvii), 'De rerum generationibus'.[2]

[For MSS. of Part vi. *De Caelestibus*, see *Opus Majus*, Part IV.].

PRINTED: Part i., *Eng. Hist. Rev.* xii. p. 494. Parts iii.-vi., (incomplete), in Brewer, *Rog. Bacon Opera inedita*, pp. 313-89. Part ii. (?) in Bridges, *Opus Majus*, I. 376-403.

[1] See above p. 81.

[2] This MS. (transcripts of Brian Twyne) also contains 'excerpta ex libro ad Clem. IV. de peccatis theologorum'.

Cf. Hody, *De Bibliorum Textibus*, Oxon. 1705, pp. 419-28 (extracts).

Summary in Duhem, *Opus Tert.*, p. 179-181.

[Trin. Coll. Cambridge MS. 1363, ff. 1-3^{b} (sec. xv.), formerly belonging to Dr. Dee, contains a passage which I have failed to find ; it may belong to *Opus Minus*. 'Bacon in Epistola ad Clementem papam cap. i.' *Inc.* 'Secundum quod sunt 4^{or} elementa sic sunt quatuor corpora quorum quodlibet componitur ex elementis sed ex uno per dominium'. *Expl.* 'Et quanto magis iste ordo iteretur tanto magis augmentatur sua claritas et virtus. *Expl. tres medicine lapidis*'. (But *cf.* note to *Tract. de erroribus medicorum*, No. 31, below.)]

16. *Opus tertium*, written in 1267, was, like the *Opus Minus*, both an introduction and a supplement to the *Opus Majus*. As edited by Brewer it contains 75 chapters (but the divisions of chapters are given in the MSS. in a modern hand). Chapters 1-21 deal with Bacon's gratitude to the pope, his difficulties, the relative importance of sciences and their relations to each other, with special reference to the *Opus Minus*. With chapter 22 begins the commentary on the *Opus Majus*, with a long digression on vacuum, motion and space, cap. xlii.-lii. The remainder of the work deals with the utility of mathematics in relation to secular and sacred subjects, as treated in Part IV. of *Opus Majus*.

Here the treatise as edited by Brewer ends.[1] Professor Duhem has recently discovered the remainder of the work in a MS. at Paris (Bibl. Nat. Lat .10264, sec. xv.), under the name of Alpetragius or Al Bitrogi : *Liber tertius Alpetragii. In quo tractat de perspectiva : De comparatione scientie ad sapientiam. De motibus corporum celestium secundum ptolomeum. De opinione Alpetragii contra opinionem ptolomei et aliorum. De scientia experimen-*

[1] There is no analysis of the latter part of *Op. Maj.* part iv. i.e., of the sections on geography and astrology.

torum naturalium. De scientia morali. De articulis fidei. De Alkimia. This fragment contains (1) summary of *Op. Majus*, part v. : (2) excursus *de motibus corporum celestium* (*inc.* 'Hic in fine perspectivarum volo advertere aliqua de motibus celestibus') with a comparison of the systems of Ptolemy and Al Bitrogi ; (3) summary of *Op. Maj.* part vi., with a chapter *De scientia quinte essentie ;* (4) summary of *Op. Maj.* part vii. (5) summary of *Opus Minus.* (6) *De Alchemia* [see No. 17]. (7) *Magnus Tractatus et nobilis, De rerum naturalium generatione* etc., fragment. *Inc.* 'Hiis habitis volo descendere,' i.e. *Communia Natural.* Lib. i. pars. ii. Dist. 2 (Steele, p. 65-8). Professor Duhem argues that this last treatise formed part of the *Opus Tertium*, and that it was followed by a treatise *De peccatis et remediis studii theologiae*, which he identifies with the *Metaphysica* in *Comp. Phil.* vol. iv. (see No. 36 below).

Inc. 'Sanctissimo patri ac domino Clementi . . . Vestrae [sapientiae] magnitudini duo transmisi'.

MSS. Brit. Museum : Cott. Tib. C. v. (sec. xv.), f. 2-45[b], containing cap. 1-75 in Brewer's ed.—Jul. F. vii. (sec. xv.), f. 183-85, containing cap. 59 and part of 60.—Royal 7 F. vii. f. 106, contains a passage for insertion at the end of Part III. of the *Communia Nat.*, which corresponds almost verbatim with *Opus Tert.*, cap. 46-49.—Add. 8786, f. 14[a]-19[a] (sec. xiv.), cap. 41-51 (Brewer, pp. 142-98), with variants.

Lambeth Palace, 200 (sec. xv.), containing cap. 1-45, entitled *de laude S. Scripturae.*

Oxford : Bodl. E. Musaeo 155 (sec. xv. in.).—Univ. Coll. 49 (sec. xvii.).[1]

Cambridge : Trin. Coll. 1036 f. 21-4 (sec. xv), "Item capitulum extractum de quodam opere quod fecit idem Fr. Rogerus de ord. min. ad mandatum Clem-

[1] *Cf.* Corp. Chr. Coll., Oxford, 260 (Bryan Twyne), p. 101, 'Excerpta ex praeambulo Rogeri Bacon ad opus suum majus et minus ad Clem. IV.'.

entis. Et valet ad exposicionem dictorum et dicendorum in textu. 'Sequitur de sciencia experimentali que est dignior omnibus aliis et potencior.'" Ends f. 24b: 'extra terminos aliarum scientiarum consistit in duobus,' i.e. Duhem pp. 137-52.—*Ibid.*, 1294 (sec. xvii.), transcript of Tib. C. v.

Douai 691 (sec. xvii.), wanting cap. 38-52: this MS. has been described by Victor Cousin, *Journal des Savants*, for 1848 (five articles).

Paris: Bibl. Nat. Lat. 10264 (sec. xv.), f. 186-226, described by Prof. Duhem, *Arch. Franc. Hist.* i. 238-40 (1908). *Inc.* 'Postquam manifestavi mathematice potestatem aspiravi'.

PRINTED, cap. 1-75 in *Opera Inedita* (R.S.), ed. Brewer, pp. 3-310. The latter part in *Un fragment inédit de l'Opus Tertium de Roger Bacon précédé d'une étude sur ce fragment par Pierre Duhem* (Quaracchi, 1909).

17. *Tractatus expositorius enigmatum alchemiae.* Bacon sent to Clement IV. four treatises on this subject: two were inserted in the *Opus Minus*, a third was sent separately by the hand of John, and is unknown. The fourth has recently been discovered by Professor Duhem appended to the *Opus Tertium.* It consists of three chapters: *De enigmatibus Alkimie*, *De expositione enigmatum Alkimie*, *De clavibus alkimie.*

MSS. Paris: Bibl. Nat. 10264, f. 222 (sec. xv.): *inc.*—'Quoniam vero non expressi'—*expl.* 'convincere fraudulentum.'

Cambridge: Univ. Libr. Ff. iv. 12, f. 319 (sec xvi.): *inc.* 'Determinata quarta parte philosophie moralis addidi de quinta'[1]—*expl.* 'convincere fraudulentum'.

PRINTED, in Duhem's *Op. Tert.* p. 181-90.

18. *Treatise on Astrological Judgements.* A separate treatise on this subject was sent to the pope. 'Et si vultis copiosius videre, jubeatis Johanni ut faciat scribi de bona litera

[1] Duhem, p. 178.

tractatum pleniorem quem habet pro vobis;' *Op. Tert.* (Brewer), p. 270; *cf. Op. Majus* (Bridges), i. 393. This does not appear to be extant; a passage belonging to it may be preserved in the *De laudibus Mathematicae.* Compare also '*Processus fratris Rogeri Bacon . . . de invencione cogitacionis*' (astrological fragment). *Inc.* 'Notandum quod in omni judicio quatuor sunt inquirenda, scil. natura planete'. MS. Bodl.: Digby 72, f. 49^b, 50 (secs. xiv.-xv.). Probably an extract from one of Bacon's larger works.

19. *De laudibus mathematicae.* A different recension of matter which occurs, for the most part word for word, in *Opus Majus*, Part IV. The contents are: i. Preface, *inc.* 'Post hanc scientiam experimentalem': ii. Bridges, p. 175, 'Et cum multis modis'—p. 180, 'qualitatibus applicari': iii. After a short connecting link, Bridges, p. 239, 'ideo volo in praesenti—245, 'certificare in omnibus': iv. A passage[1] on the uncertainty of astrological judgements not found in *Opus Majus*, but possibly connected with the separate work mentioned in *Op. Tert.* p. 270, and in *Op. Majus*, Bridges, I. 393; v. Bridges, p. 246, 'His igitur et huiusmodi'—p. 253, 'veritati contradicit'; vi. after a short connecting link, Bridges, pp. 180-81, 'una est notitia caelestium—sciunt astronomi quod tota terra'. Ends incompletely. It is not clear to what scheme this work belongs. In the *Grey Friars in Oxford*, p. 203, it was suggested that it may have been meant as a preface to vol. ii. of the *Compendium Philosophiae*; but in that scheme physics follow mathematics, and not *vice versâ.*

MSS. Brit. Museum: Royal 7 F. vii. f. 72-77.
Oxford: Bodl.: Digby 218 f. 98.

20. *De speculis comburentibus.* *Inc.* 'Ex concavis speculis ad solem positis ignis accenditur'.

MSS. Brit. Museum: Add. 8786, f. 49^a-61^a.

[1] Beginning f. 73^b i, 'et si[c] astrologi promittunt se certificare non est eis credendum'. Ending f. 76^b ii, 'quas videmus in sompnis ex illa contingunt'.

Oxford: Bodl. 874, p. 71 (sec. xv.)—Ashmole 440 (sec. xvi.).

Florence: Riccardi 885, f. 200 (sec. xiv).

Cf. Milan: Ambrosiana R. 47 sup., f. 150: 'Inc. liber de speculis. Visu rectum esse . . . (*expl.*) ex concavis speculis ad solem positus ignis accenditur. Expl. liber Euclidis de speculis.' (34 chapters).

PRINTED at Frankfurt, 1614, in Combach's *Specula Mathematica*, pp. 168-204: where it is followed by *Notulae de Speculo:* 'Notandum quod quia omnes axes . . . et sic de omnibus aliis intellige' (pp. 205-7).

Cf. MS. Bodl. Can. Misc. 408, f. 48, 'Speculi Abnukefi compositio secundum Rogerium Bacon'. *Inc.* 'Quia universorum quos de speculis ad datam distanciam'. Brit. Mus.: Tib. B. ix. f. 227, *inc.* 'In speculo concavato concavitate seccionis (?) Mukefi omnis,' ascribed to Bacon in a late hand. Vesp. A. ii. f. 140, '*de speculis comburentibus et de sectione Mukefi*' (olim Johannis Dee).—Oxford, Corp. Chr. Coll. 260, p. 147 (Twyne's copy of Vesp. A. ii.).

21. *Epistolae fratris Rogerii Baconis de secretis operibus naturae et de nullitate magiae*, or *De mirabili potestate artis et naturae.* The work consists of ten or eleven chapters, the last five of which Charles considered doubtful,[1] addressed perhaps to William of Auvergne (died 1248) or to John of London, whom Charles identifies with John of Basingstoke (died 1252). *Inc. cap. i.* 'Vestrae petitioni respondeo diligenter. Nam licet.'

MSS. Brit. Museum: Sloane 2156, p. 117.

Oxford: Bodl.: Digby 164, f. 8 (sec. xv.).—*Cf.* Merton Coll. 230, f. 51b (sec. xiv.).

Rome: Vatican 4091, f. 62 (extracts).

PRINTED at Paris, 1542; Oxford, 1594; Hamburg, 1618; in Zetzner's *Theatrum Chemicum*, 1659;

[1] Apparently merely because they are 'enigmatic'. But see the ingenious explanation by Lieut.-Col. Hime, *Gunpowder and Ammunition* (1904) pp. 141-62.

Manget's *Thesaurus* (1702), i. 616, and by Brewer in *Rog. Bacon Opera Ined.* App. I. French translations, 1557, 1629; English translations, 1597, 1659.

22. *Excerpta de libro Avicennae De anima per fratrem Rogerum Bacon.* *Inc.* 'In illius nomine qui major est'.

MS. Bodl.: Ashmole 1467 (sec. xvi.) [*Cf.* Charles, *R. Bacon*, p. 59.]

PRINTED at Frankfurt, 1603, under the title *Sanioris medicinae magistri D. Rogeri Baconis angli de arte chymiae scripta*, etc., pp. 17-86: reprinted, 1620, under the title *Thesaurus Chemicus*, etc.

23. *Breve breviarium*, or *De naturis metallorum in ratione alkimica et artificiali transformatione*, or *Caelestis alchymia*, or *De naturis metallorum et ipsorum transmutatione*, or *Breviloquium alkimiae.*[1] *Inc.* 'Breve breviarium breviter abbreviatum sufficit intelligenti'.

MSS. Brit. Museum: Sloane 276, f. iv. (sec. xv.). *Inc.* 'Ars alkimie duo principaliter considerat' (2 parts, de mineralibus, de vegetabilibus et sensibilibus).

Oxford: Bodl., E Musaeo 155, p. 513: Digby 119, f. 64 (sec. xiv.).

Cambridge: Univ. Library, Kk. vi. 30, ff. 87-103 (secs. xv., xvi.); Gonville and Caius Coll. 181, pp. 189-208 (sec. xv.).

Paris: Bibl. Nat., Nouv. Acq. Lat. 1153; *inc.* 'Ars alkimica duo'.—Ibid. 14007 (sec. xv.), f. 1: *inc.* 'Ars alkimica'.

Florence: Riccardi 847, Liber de Alchimia: *inc.* 'Ars principaliter duo continet'.

[1] It seems to consist of two principal and two subsidiary parts: (1) introductory—speculative: *inc. De compositione metallorum.* 'Incipiamus ergo generationem metallorum ostendere'. (2) Practical: *Incipit liber secundus de Practica.* 'Non quidem necessarium. . . . *De consideratione Alchymiae et auri proprietate.* 'Ars ergo Alchemiae duo principaliter considerat. . . .' This deals with metals. (3) *Tractatus de vegetabilibus et sensibilibus:* 'Executo breviter tractatu de spiritibus mineralibus'. (4) *Incipit de Salibus:* 'Executis igitur duabus principalibus partibus'. *Expl.* 'moribus et studiis liberalibus ad plenum eruditi'. *Cf.* the treatises on alchemy in *Opus Minus.*

Rome:[1] Minerva, A.V. 9, f. 89-113 (anon.).

PRINTED, 1603, as above (p. 95).

24. *Tractatus trium verborum*, or *Epistolae tres ad Johannem Parisiensem:* namely (i) 'De separatione ignis ab oleo,' or 'De modo projectionis': (ii) 'De modo miscendi': (iii) 'De ponderibus'. *Inc.* 'Cum ego Rogerus rogatus a pluribus'.

MSS. Brit. Museum: Cott. Jul. D. v. (sec. xiv. in.), f. 152-58, 160-4).[2] Harl. 3528, f. 174: Sloane 1754, 'Mendacium primum, secundum et tertium'.

Oxford: Bodl.: Digby 119, f. 82 (sec. xiv. in.): Ashmole 1416, f. 42-51 (sec. xv.), 1433 (sec. xvi.), 1448, pp. 1-25 (sec. xv.).—Corpus Christi Coll. 125, f. 84[b]: University Coll. 49.

PRINTED, 1603, as above (pp. 292-387).

25. *Fragment on alchemy*, without title.

MS. Paris: Bibl. Nat. 2598, f. 138 (sec. xv.): *inc.* 'Licet in questione qua queritur utrum . . . generatur aliquid sit (?) principium activum non credam te aliquatenus dubitare'. 'Explicit de subjecto transmutationis secundum Rogerum Bachonis'. It probably occurs in one of his larger works.

26. *Libellus Rogerii Bacon . . . de retardandis senectutis accidentibus et de sensibus conservandis* (11 or 12 chapters).[3] This work is assigned by Charles to the year 1276, but it is referred to in *Opus Majus* (Bridges II. 209), and hence written before 1267. *Inc. Prol.* 'Domine mundi ex nobilissima stirpe originem assumpsistis . . . cogito et cogitavi'. *Inc. cap.* i. (De causis senectutis) 'Senescente mundo senescunt homines'.

[1] Vatican Pal. Lat. 4092, 'Liber fratris Rogerii de naturis metallorum' seems to be the *Libellus Alchemiae* of Alb. Magnus: *inc.* 'Omnis sapientia'.

[2] Jul. D. v. f. 166a-167b has anon. letter: "Quesivisti, fili karissime, de incantacione et adiuracione colli suspensione si quid possent prodesse, et sicut inveni in libris grecorum hec qualiter indorum etiam libris invenirem, tue peticioni compendiose in hac epistola cogor respondere. Omnes inquam antiqui in hoc videntur esse concorditi . . . altitudinem. Explicit." Probably the letter of Constantinus Africanus to which Bacon refers in *De mirabili potestate cap.* ii.

[3] The printed editions have 16 chapters.

MSS. Brit. Museum: Sloane 2320, f. 56.[1]

Oxford: Bodl. 211 (sec. xv.); Bodl. 438, f. 1 (sec. xv.); E. Musaeo 155, pp. 591-637 (sec. xiv.-xv.); Canonic. Misc. 334, f. 1 (sec. xv.) and 480, f. 1 (sec. xv.); Selden supra 94, f. 1 (sec. xiv.); Arch. Seld. B. 29, f. 1 (sec. xiv.). *Cf.* Digby 202, f. 87 (sec. xvi.).

Cambridge: Univ. Lib. Dd. v. 53, p. 72; Trin. Coll. 922, f. 1 (sec. xv.), in English; and 1389, f. 106 (sec. xv.).

Manchester: Chetham Library 11366, f. 1-32 (sec. xiii.).

Milan: Ambrosiana I. 210 inf.

Rome: Vatican Pal. Lat. 4091, f. 71 (sec. xvi.): *ibid.* 1180, f. 332 (sec. xv.), and Bibl. Reg. Sueciae, 1072.

PRINTED at Oxford, 1590 (and in English, London, 1683).

27. *Antidotarius*, a second part of the foregoing work. *Inc.* 'Post completum universalis sciencie medicacionis tractatum'.

MSS. Oxford: Bodl. 438, f. 14b-21b (sec. xv.); Can. Misc. 334 (f. 21b-25), and 480 (f. 16): E. Musaeo 155, p. 645; Selden supra 94, f. 133; Arch. Seld. B. 29, f. 17b. *Cf.* Can. Misc. 480, f. 38b-47.

Manchester: Chetham Library 11366, f. 37b.

Milan: Ambrosiana I. 210, inf.

28. *Liber Bacon de sermone rei admirabilis, sive de retardatione senectutis.* *Inc.* 'Intendo componere sermonem rei admirabilis domino meo fratri E., cuius vitam deus prolonget'.

MSS. Oxford: Bodl. E. Musaeo 155, pp. 655-666; Digby 183, f. 45 (sec. xiv. ex.) imperf.: Can. Misc. 334, f. 25-31; Arch. Seld. B. 29, f. 20.

[1] On f. 27-29b of this MS. occurs 'summaria expositio epistole fratris Rogeri Bacon de Retardatione,' etc.: *inc.* '[R]imatus sum moderno tempore omnia fere armaria latinorum et intellexi per interpretationem quorundam grecorum arabum et caldeorum scripta plurima' . . . 'Expositio primi verbi scilicet Olei. Incipiamus igitur in nomine dei . . . verba precedentis epistole vestre sanctitati et clementie aperire . . '.

29. *De universali regimine senum et seniorum.*[1] *Inc.* 'Summa regiminis senum universalis ut dicit Avicenna'.

MSS. Brit. Museum: Sloane 2629, f. 57.

Oxford: Bodl. 438, f. 12^b-14^b: Can. Misc. 334, f. 18^b-21^b; and 480 (*explicit*, f. 16); E. Musaeo 155, p. 638; Selden supra 94, f. 114^b.

Cambridge: Trin. Coll. 1389, f. 1 (sec. xv.).

Manchester: Chetham Library 11366, f. 32^b-34.

(This short treatise generally includes *De balneis senum et seniorum* (*inc.* 'Senes sunt balneandi'): and *De compositione quarundam medicinarum in speciali que iuvant sensum*, etc. (*inc.*: 'Incipiamus in nomine domini').

30. *De graduacione medicinarum* [or *rerum*] *compositarum. Inc.* 'Omnis forma inherens'.

MSS. Oxford: Bodl. 438, f. 21^b-22^b: Can. Misc. 334, f. 32; 480, f. 23^b; Selden supra 94, f. 187; Arch. Seld. B. 29, f. 24^b. *Cf.* Ashmole 1437, f. 2-3 (sec. xv.).—Corp. Chr. Coll. 254, f. 178^b (sec. xvi.).

Cambridge: Trin. Coll. 1389, f. 20.

Manchester: Chetham Libr. 11366, f. 45^b.

31. *Tractatus de erroribus medicorum.*[2] *Inc.* 'Vulgus medicorum'.

MSS. Oxford: Bodl. 438, f. 22^b-28: Can. Misc. 334, f. 42; 480, f. 30; E. Musaeo 155, pp. 669-89; Selden supra 94, f. 194; Arch. Seld. B. 29, f. 31.—Corpus Chr. Coll.. 127 (sec. xv.).

Cambridge: Trin. Coll., 1389, f. 22.

Manchester: Chetham Lib., 11366, f. 58.

32. *Canones practici de medicinis compositis componendis* (thirteen chapters). 'Cap i. Extractum de libro septimo Serapionis qui est antidotarium suum et est theoricum capi-

[1] Bacon refers to this or a treatise with the same title as though he were not the author: *Opus Majus*, ii. 210, 213.

[2] Sloane MS. 3744, p. 71 (sec. xv.), contains *Errores secundum Bacon. Inc.* 'Scito enim quod omne corpus aut est elementum aut ex elementis compositum'. According to Charles (p. 71) this is the *Tract. de erroribus medicorum.* (*Cf.* last paragraph of No. 15 above.)

tulum'. *Inc.* 'Necesse esse illi qui vult componere medicinas'. 'Explicit tractatus de compositione medicinarum per fratrem rugerium bacon editus.'

MSS. Bodl. Canon. Misc. 480, f. 38^{b}-47; Selden supra 94, f. 256^{b}; Arch. Seld. B. 29, f. 43 (sec. xiv.).

33. *De leone viridi* (on the manufacture of mercury. etc.): only the summary by Raymund Gaufredi is extant. *Inc.* 'Verbum abbreviatum verissimum'.

MSS. Brit. Museum: Sloane 692, f. 46 (sec. xv.), followed on f. 112 by 'finalis conclusio Rogeri Bacon' (*inc.* 'Sume argentum vivum'); Sloane 317, f. 92^{b}.

Oxford: Bodl.: Digby 119, f. 77^{b} (sec. xiv. in.).—*Cf.* Corp. Chr. Coll. 277.

Florence: Riccardi, 847 (sec. xv.)

Rome: Minerva A.V. 9, f. 185.

PRINTED at Frankfurt, 1603, *Sanioris medicinae*, p. 264-85.

34. *Grammatica Graeca*, see *Compendium Philosophiae*, No. 36.

35. *Grammatica Hebraica*, see *Compendium Philosophiae*, No. 36.

36. *Compendium Philosophiae*, or *Scriptum Principale*, an encyclopædic work on which Bacon was already engaged before he received the pope's command, and which if completed would have formed a kind of revised and enlarged edition of the *Opus Majus*, *Opus Minus* and *Opus Tertium*. In the *Communia Naturalium* (ed. Steele, p. 1) Bacon gives a sketch of his plan. The work was to consist of four volumes and to treat of six branches of knowledge, viz. vol. i., Grammar and Logic; vol. ii., Mathematics; vol. iii., Physics; vol. iv., Metaphysics and Morals. This *Compendium* seems also to have been known as *Liber Sex Scientiarum*. The latter title is found in the collection printed at Frankfurt, 1603, in Bodl. MSS. Can. Misc. 364, f. 49^{b}; 480, f. 33; Selden supra 94, f. 240^{b}; Arch. Seld. B. 29, f. 37^{b}; and E. Musaeo 155, p. 689 (*cf.* Trin. Coll. Camb. 922, f. 53). In each of these MSS. the

same passage is quoted as follows: ' Dicta fratris Rogerii Bacon in libro sex scientiarum in 3° gradu sapiencie, ubi loquitur de bono corporis et de bono fortune et de bono et honestate morum—(*Inc.*) In debito regimine corporis et prolongatione vite ad ultimos terminos naturales . . . miranda potestas astronomie alkimie et perspective et scientiarum experimentalium. Sciendum igitur est pro bono corporis quod homo fuit immortalis naturaliter . . . (*expl.*) ut fiant sublimes operaciones et utilissime in hoc mundo, etc.'—Charles identifies the *Liber Sex Scientiarum* with the *Opus Minus;* but this passage does not occur in the extant portion of the *Opus Minus* which deals with the same subject and expresses the same ideas (Brewer, p. 370 *seq.*). It seems probable therefore that the passage is an extract from the section on Alchemy in vol. iii. of the *Compendium Philosophiae.*

Vol. I. *Grammar and Logic.* The fragment printed by Brewer under the title *Compendium Studii Philosophiae* may be a portion of this volume. It was written in 1271, and contains an introduction on the value of knowledge and the impediments to it, and the beginning of a treatise on grammar. *Inc.* ' Quatuor sunt consideranda circa sapientiam quae volo ad praesens in summa et sub compendio quasi introductionis modo tangere '.

MS. Brit. Museum: Cotton Tib. C. v. f. 120-151 (sec. xv.).

PRINTED: Brewer, *Op. Ined.* p. 393-519.

Other treatises on Grammar which may in some form or other have formed part of the *Comp. Phil.* are:—

(1) Greek Grammar.

MSS. Oxford, Corp. Chr. Coll. 148, f. 1 (sec. xiv.): ' Primus hic liber voluminis grammatici circa linguas alias a latino qui est de grammatica graeca habet tres partes '. *Pars I. Dist. i., cap. 1: inc.* ' Manifestata laude et declarata utilitate cognicionis grammatice quatuor linguarum, scil. grece, hebree, arabice et caldee '.

Brit. Mus.: Cotton Julius F. vii., f. 175 (a fragment of one leaf), (sec. xv.).

Oxford, University College 47 (abbreviated copy of Corpus Christi MS.).

Douai 691 (identical with Univ. Coll. MS.).

(2) Greek Grammar.

MS. Cambridge; Univ. Lib. Ff. 6, 13, f. 67-69 (begins with Greek alphabet).

(3) Hebrew Grammar.

MS. Cambridge: Univ. Lib. Ff. 6, 13, f. 66.

These three edited by Nolan and Hirsch, *The Greek Grammar of Roger Bacon and a Fragment of his Hebrew Grammar*, Cambridge, 1902.[1]

[(4) Notes or Letters to a friend, chiefly on Hebrew and Greek grammar, with special reference to the Bible, described by Samuel Berger in *Quam notitiam linguae Hebraicae habuerint Christiani medii aevi temporibus in Gallia*, Paris, 1893, are perhaps by Roger Bacon, more probably by William de Mara.[2] *Inc.* 'Quoniam quedam glose mencionem faciunt de literis et vocabulis hebrais et grecis'.

MSS. Toulouse 402, f. 233 (sec. xiii.).

Florence: Laurent. pl. xxv. sin. 4, f. 179-210 (sec. xiii.-xiv.), 'Compilacio fratris Guillelmi de Mara . . .'.

Einsiedeln 28, f. 212 (extracts), (sec. xiv.)].

Attention may also be drawn to the following MSS.:—

Cambridge: Peterhouse 191, f. 30 (secs. xiii., xiv.): Rogeri Bacon summa de grammatica. *Inc.* 'Oracio grammatica aut fit mediante verbo prime persone': *Expl.* f. 50^b: 'stabit pro die dominica. Explicit summa de grammatica magistri Rogeri Bacon'.

Worcester Cathedral, Q 13, f. 5-24 (sec. xiv.), anon. (same as Peterhouse MS.)

Brit. Museum: Cott. Tib. C. v. f. 46 (after *Opus Tert.*):

[1] *Cf.* Heiberg, in *Byzant. Zeitschrift*, ix. 479, xii. 343.

[2] The author refers to his lectures on Lamentations—'cum legerem Trenos,' etc.—evidently in the Univ. of Paris.

'Decem et octo preposiciones habent greci 12 dissillabas 6 monasillabas: prime sunt hec: apo, ana,' etc. Then follow explanations of words beginning with these prepositions (1 page): f. 47, 'Lincolniensis post expositionem prologi angelice Ierarchie. In Greca scriptura sunt due chie' (2 pages).

(The Greco-Latin Lexicon in College of Arms MS. Arundel IX., described by M. R. James in *Mélanges offerts à M. Emile Chatelain*, is not by Bacon.)

Vol. II. *Mathematics*;[1] 6 books. i. *Communia Mathematicae.* ii.-vi. Special branches of mathematics. *Inc. lib.* i. 'Hic incipit volumen verae mathematicae habens sex libros. Primus est de communibus mathematicae, et habet tres partes principales'.

MSS. Brit. Museum: Sloane 2156, f. 74-97 (sec. xv.), ending in the second part of the first book.

Bodl.: Digby 76, f. 48 (sec. xiii.), containing the remainder of the first book (?). *Inc.* 'Mathematica utitur tantum parte'.

EXTRACTS printed in Charles, p. 361-8.

Libri ii.-vi. An extant fragment of a commentary on the Elements of Euclid, probably by Bacon, may have belonged to this part.

MS. Bodl.: Digby 76, f. 77-8 (sec. xiii.).

Vol. III. *Physics.* 4 books; i. 'de communibus ad omnia naturalia'; ii. 'de celestibus'; iii. 'de elementis et mixtis inanimatis'; iv. 'de vegetabilibus et animalibus'. (Steele, p. 1.)

Liber 1. *Communia Naturalium*, divided into 4 parts.

MSS. Brit. Museum: Royal 7 F. vii. f. 84 (sec. xiii. ex.): 'Hoc est volumen naturalis philosophie in quo traditur sciencia rerum naturalium secundum potes-

[1] The treatise *De laudibus mathematice* (No. 19) cannot (as suggested in *The Grey Friars in Oxford*, p. 203) have been intended as an introduction to this volume, as it begins 'Post hanc scientiam experimentalem,' etc. In the *Compendium Phil.* physics follow mathematics, not *vice versâ*.

tatem octo scienciarum naturalium que enumerantur in secundo capitulo,' contains Parts I., II., III., and capp. 1-7 of Part IV. *Inc.* 'Postquam tradidi grammaticam secundum linguas diversas: *expl.* terminus generacionis'.

Cotton Fragment iv., f. 22, contains a copy of diagrams on ff. 91^b, 92, of the Royal MS. (Steele, p. 87).

Sloane 2629, f. 56^b, contains a few lines on moral philosophy from *Com. Nat.* p. 2.

Oxford: Bodl.: Digby 70 (sec. xv. in.). *Inc.* 'Postquam tradidi grammaticam'. Contains the same as Royal MS.

Paris: Bibl. Mazarine 3576. f. 1-90 (sec. xv.). *Inc.* 'Postquam tradidi,' etc.

PRINTED: Parts I. and II., by Robert Steele, *Opera hactenus inedita Rogeri Baconi*, Fasc. II.[1] (Oxf. 1909). Extracts in Charles, pp. 369-91.

Another version[2] of parts of the same work is contained in MSS. Brit. Museum: Royal 7 F. vii. f. 113 (sec. xiii. ex.). *Inc.* 'Ostensum est in principio cuiusdam tractatus quod necessarium est Latinis'.—Add. 8786, ff. 2-10^b (sec. xiv.). *Inc.* 'Ostensum quippe (?) in principio huius compendii philosophiae'. *Expl.* 'terminus generationis'. (Steele, 267).

Oxford: Bodl.: Digby 190, f. 29-37^b (sec. xiii.-xiv.), Rogeri Bacon Tract. de principiis naturae. *Inc.* 'Substancia igitur alia est . . . Item omne genus' (Steele, p. 50). *Expl.* 'terminus generationis'.

Libri ii., iii., iv. The special natural sciences were treated in three books. They were seven in number, as Bacon enumerates them in Communia Nat., Part I., cap. 2 (Steele, p. 5): 1. Perspectiva. 2. Astron-

[1] Fasc. III., containing Parts III. and IV., is about to appear.

[2] It is possible that this was meant to form part of the *Comp. Studii Theologie* (see No. 38). Mr. Steele however regards this treatise as the first part of the *Communia Metaphys.*, and holds that it was in existence before any part of the *Com. Nat.*, was written. In parts it is identical with *Com. Nat.*

omia judiciaria et operativa. 3. Sciencia ponderum de gravibus et levibus. 4. Alkimia. 5. Agricultura. 6. Medicina. 7. Sciencia Experimentalis.

Liber ii. (1) *Perspective* or *Optics*[1]—perhaps a version of the *De Mult. Spec.*, which was certainly included in the *Comp. Phil.* (see No. 14). An amplified version of the earlier part of the treatise begins: 'Dato prologo istius quinte partis huius voluminis quod voco compendium studii theologie, in quo quidem comprehendo in summa intentionem totius operis, extra partem ejus signans omnia impedimenta totius studii et remedia, nunc accedo ad tractatum exponens ea que necessaria sunt theologie de perspectiva et de visu'.

MS. Brit. Museum: Royal 7 F. viii. f. 2-12 (sec. xiii.), including dist. i., capp. 1-5, dist. ii., capp. 1-2, with references to the remaining parts of *De Mult. Spec.*

(2) *Astronomy*, or *De Coelo et mundo*, 5 parts.

MSS. Paris: Bibl. Mazarine, 3576, f. 91ª: 'Incipit 2ᵘˢ liber communium naturalium qui est de celestibus uel de celo et mundo cuius hec est pars prima. Cap. I. Prima igitur veritas'.

Oxford: Bodl.: Digby 76, f. 1 (sec. xiii.), *Compendium Philosophiae*. *Inc.* 'Prima igitur veritas circa corpora mundi est quod non est unum corpus continuum et unius nature'. *Ibid.* f. 36, 'De corporibus coelestibus, sc. de zodiaco, sole,' etc. *Inc.* 'Habito de corporibus mundi prout mundum absolute constituunt'.—Ashmole 393, I. f. 44 (sec. xv.), 'Veritates de magnitudine . . . planetarum, Tractatus extractus de libris celi et mundi nobilissimi illius philosophi et doctoris S. theol. R. B. qui omnia rectificavit a tempore primorum auctorum astronomie usque ad tempus suum'. f. 44ᵇ, 'Sequitur tractatus alius de eisdem libris celi et mundi . . . de necessariis circulis in celo ymaginatis . . . Primo igitur sciendum quod nullus

[1] See Addenda.

cir[culus] secundum veritatem est in celo nisi gallaxa tantum.'[1]

(3) *Gravity.*

[*Cf. Tractatus Trium Verborum*, No. 24.]

Liber iii. (4) *Alchemy.*

Cf. 'Excerpta ex libro sex scientiarum' in *Sanioris medicinae*, etc. (Frankfurt, 1603), p. 7, 8. 'Quarta vero scientia non modicum habet utilitatem . . . et est Alchymia speculativa,' etc., and the following passage, pp. 9-16: 'Idem Rogerus libro praedicto probat quod ex his cum adjutorio scientiae experimentalis,' etc.

Liber iv. (5) *Agriculture*—'Sciencia de plantarum natura et animalium . . . preterquam de homine'.

[*Cf. Breve Breviarium*, No. 23.]

(6) *Medicine.*

(7) *Experimental Science.*

Vol. IV. *Metaphysics and Morals.*

A fragment of the Metaphysics only seems to be extant. This was written in or before 1266 (see Preface and Appendix to Steele's edition). *Inc.* 'Quoniam intencio principalis est innuere nobis [*or* vobis] vicia studii theologici'.

MSS. Oxford: Bodl.: Digby 190, f. 86b (fragment): title: 'Metaphisica fratris Rogeri O.F.M. de viciis contractis in studio theologie'.[2]

Paris: Bibl. Nat. 7440, ff. 38-40, 25-32.

PRINTED, in *Opera hactenus inedita*, ed. R. Steele, Fasc. I. Extracts in Charles, p. 391-7.

37. "*Bacon in Meteora*" (tit. manu sec. xvi. ex.). *Inc.* "Cum noticiam impressionum habendam" (probably part of the *De Caelo et Mundo* in *Comp. Phil.*)

MS. Bodl.; Digby 190, f. 38 (sec. xiv. in.).

[1] *Cf.* Digby 183, f. 38. *Alkindus de radiis stellarum;* 'Omnes homines qui sensibilia sensu percipiunt'; with marginal note, 'quod est extractum de libro Rogeri Bakun de celo et mundo, capitulo de numero celorum'. *Cf.* Brit. Mus. Add. 8786 f. 10b-12b: no title. *Inc.* 'Numerus sperarum continentium'.

[2] Duhem, p. 33, argues that this formed part of the *Opus Tert.*

38. *Compendium studii theologiae*, Bacon's last work, written in 1292. In 3 or more parts. *Inc.* 'Quoniam autem in omnibus causis autoritas'.

MSS. Brit. Museum: Royal 7 F. vii. f. 78, incomplete. (At the end of the article a seventeenth century hand adds: 'quaere residuum, p. 221,' referring to the version of the *Communia Naturalium* already mentioned, p. 100, beginning 'Ostensum est'.)

Oxford: Univ. Coll. 47 (copied from Royal MS.).

PRINTED in this volume,

Extracts in Charles, p. 410-15.

Among doubtful works are :—

39. '*Liber de visu Baconis*' [*sive de mensurandis distantiis*] 10 chapters. *Inc.* 'Supponatur ab oculo eductas lineas rectas'. *Expl.* 'videbitur illud non latum retrorsum ferri'.

MS. Milan: Ambrosiana R. 47 sup. f. 133.

Cf, MS. Amiens 406, f. 153, fragment of a treatise (anon.) on optics in the form of *quæstiones*, beginning cap. iv., quæst. 9: '. . . ergo natura communis per quam perspicuum inest corporibus partium expansio': and ending with cap. xii. entitled: 'De radio exeunte ab oculo et de eius natura et quomodo per ipsum contingat videre et quomodo non [etc.] . . . in oculo qui est corpus parvum et figure rotunde'.

40. *Summulae dialectices*, an elementary treatise on logic, characterised by Charles, who expresses a doubt as to its authenticity, as very dry, unimportant, and intended for lecturing purposes. *Inc.* "Introductio est brevis et apta demonstratio in aliquam artem vel scientiam". "Expliciunt sumule magistri Roberti Baccun."

MS. Bodl.: Digby 204, f. 48 (sec. xiv. in.).

41. '*Sincategreumata fratris Rogeri Bacon*' (tit. manu secunda). *Inc.* "Parcium orationis quedam sunt declinabiles".[1]

[1] Cf. Bale, *Index Script. Brit.*, p. 395: *De constructione partium* [*orationis*]; *inc.* 'Ad completam cognitionem constructionis'. In the Syon MS. A. 4, from which Bale took this entry the treatise appears from the catalogue to have been anonymous.

MS. Bodl.: Digby 204, f. 88 (sec. xiv. in.).

41. *Tractatus de signis logicalibus.* *Inc.* "Signum est in predicamento relationis et dicitur essentialiter". *Expl.* "Dicendum est quod dupliciter intelligitur aliquid in alio".

MS. Bodl.: Digby 55, f. 228. (The ascription of this to Roger Bacon is in a later hand.)

Many works on alchemy are attributed to Bacon erroneously or without probability. A few of the following may however be genuine.

42. *Speculum alchemiae* (*de transmutatione metallorum*). *Inc.* 'Multifariam multisque modis . . . (cap. 1). In antiquis philosophorum libris' (7 chapters).

MSS. Brit. Museum: Addit. 8786, f. 62; 15,549, f. 101 (with the introductory letter); Sloane 3506 f. 42, (English); Sloane 692, f. 1 (sec. xv.).

Oxford: Bodl.: Ashmole 1416, f. 101.—New Coll. 294 (French).

Cambridge: Univ. Libr. Ff. iv. 12, f. 39, called 'Rosarium Johannis'.—Trin. Coll. 915,117; *cf. ibid.* 1120, III., f. 28^{b}, 'Bacon in Speculo alkymie; Inter cetera que dixi'.

PRINTED at Nürnberg, 1541; in Zetzner's *Theatrum Chemicum* (1659), vol. ii. pp. 377-433. Manget's *Thesaurus* (1702), i. 613; etc., etc. French translation, 1557[1]; English translation, 1597, and in Salmon's *Medicina Practica* (1707), p. 621.

43. *Speculum Alchemiae* (perhaps by Arnald de Villeneuve?) *Inc.* 'Speculum alchemie quod in corde meo figuravi'.

MS. Brit. Mus.: Harl. 3528, f. 185.

Another Speculum Alchemiae, which Nasmith suggests may be by Bacon, is in Corp. Chr. Coll. Cambridge. MS. 99, p. 189: *inc.* 'Sciendum est quia philosophi per 4^{or} verba' (*Cf.* MS. Ashmole 1416, f. 37, libellus alchemicus de quatuor verbis).

Another 'Spec. Alchemiae' is in Cambridge Univ. Lib.

[1] Reprinted 1612, 1627, under the title *Miroir de maistre Jean Mehun.*

Ff. iv. 12, f. 267-271 (anon.) and in Sloane MS. 692, f. 115-7: 'Inc. tract. sciencie naturalis sive de lapide philosophorum . . . secundum fratrem Rogerum Bacon—Salutem [quam] tibi amice karissime et speculum'.

44. *Speculum Secretorum*, or *Liber Secretorum de spiritu occulto*. *Inc.* 'In nomine Domini . . . ad instructionem [instantiam] multorum'.

MSS. Brit Mus: Sloane 513, f. 178b, 188b, 'Expl. semita recta alkemie secundum mag. Rog. Bakun'.

Oxford: Bodl.: Digby 28, f. 61; 119, f. 90b; Ashmole 1467, f. 208b; 1485, p. 117.—Corpus Christi Coll. 125, f. 86 (anon.).

Cambridge: Univ. Lib. Ff. iv., 12, 298b, followed by 'Cedula declarativa Magistri Rogeri Bacon': *inc.* 'Quia diximus in speculo secretorum.'[1]

Florence: Riccardi 390, f. 133, followed by *Liber claritatis Rog. Bacon*, (*inc.* 'De libro claritatis totius artis alchimie'.

PRINTED at Frankfurt, 1603 (pp. 387-408).

45. *Secretum secretorum naturae de laude lapidis philosophorum*. *Inc.* 'Secretum secretorum naturae audiant secreti quae loquor'.

MS. Oxford: Bodl.: Digby 119, f. 80 (sec. xiv. in.).

PRINTED at Frankfurt, 1603 (pp. 285-291).

Cf. Paris: Bibl. de l'Arsenal 2872, f. 401 (sec. xiv.): 'Ci commence le testament des nobles philozophes'. *Inc.* 'La distincion des secres des sages' (with a note at the end about Roger Bacon and 'frere Raymon Joffray'; *i.e.*, Raymond Gaufredi, *cf. De leone viridi* No. 33).

Tanner, Bibl. p. 64, mentions a MS. of Roger Bacon *de philosophorum lapide* at Pembroke College, Cambridge: it does not appear to be there now. *Cf.* Digby 133 (sec. xvi.) Ashmole 1418, f. 47-60 and

[1] *Cf.* Ashmole 1478, f. 39-40 (sec. xvi.), 'Cedula declarativa Baconis. Amice, in istis consistit difficultas operis nostri'.

Sloane 1799; *Radix mundi*, a treatise of the work of the philosophers' stone by R. Bacon, 15 chapters, translated by Rob. Freelove, of London, mercer, 16 Feb. 1550. *Begins* 'The bodies of all things being'. Printed in Salmon's *Medicina Practica* (1707), p. 585, (14 chapters). *Cf.* St. John's Coll. Oxford, MS. 172, fol. 311^{b} (sec. xv.): *Tractatus alchemicus de lapide philosophico*, 'Omnium corpora constancium tam perfecta quam imperfecta': (anon.) 19 chapters, of which 1-13 correspond generally to ch. 1-13 of the printed English version.

46. *Editio super Geberem*[1] *de tribus ordinibus medicine a Rogero Bacon.* *Inc.* 'Tres sunt ordines medicinarum secundum Geberem'. *Expl.* 'Et ista duo S. capitula sunt pars cedule speculi'.

MS. Cambridge: Univ. Libr. Ff. iv. 12, f. 294^{b}-298. (A.D. 1528-1529). [*Cf.* Oxford, Corp. Chr. Coll. 226, f. 34, Joh. Pauper de lapide philosophorum: *inc.* 'Testatur Gebar . . . quod tres sunt ordines'.][2]

47. '*Compendium Alkymie secundum eundem Magistrum Rog. Bacon ut estimatur.*' *Inc.* 'Amice accipe artem in brevibus'.

MS. Cambridge: Univ. Lib. Ff. iv. 12, f. 306^{b}-311.

48. '*Epistola de spiritu occulto*' *in sulphure et arsenico.* *Inc.* 'Interrogationi vestre de secretis nature taliter vobis scribo'.

MS. *ibid.* f. 311-319 (and MS. Oxford, Ashmole 1467, f. 213-215).

49. *Tractatus de quibusdam aquis Alkimicis inventus in antiquo exemplari compilacionis fratris Rogeri Bacon.*[3] *Inc.* 'In principio dicamus de dissolucione fermenti'. *Expl.* 'et deveniet quoddam citrinum'.

[1] *I.e.*, Jabir ibn Haiyan. Some of his works on alchemy were printed at Venice 1475 (?) together with poems ascribed to Friar Elias; and at Berne 1545 with the 'Spec. Alchemiae R. Bachonis'. *Cf.* Cambridge, Corpus Chr. Coll. MS. 99, §§ 9, 10; Ashmole MS. 1445, § iv., f. 1-5. On Geber and Pseudo-Geber see Berthelot, *La Chimie au moyen âge*, I. 343, III. 126.

[2] English version in MS. Ashmole, 1418, f. 13^{b}-20^{b}.

[3] Perhaps from the *Semita Recta Alchemiae*; see No. 53.

MS. *ibid.* f. 326-333.

50. *De oleo stibii.* *Inc.* 'Stibium secundum philosophos componitur ex nobili sulphure minerali'.

PRINTED in *Currus triumphalis antimonii fratris Basilii Valentini* (Toulouse, 1646), p. 116-126.

51. *De consideratione quintae essentiae*,[1] 3 books. *Inc.* 'Dixit Salomon Sap. cap. vii., Deus dedit mihi horum,' written by a Franciscan who entered the order at Toulouse, perhaps Joh. de Rupescissa.[2]

MSS. Brit. Mus.: Sloane 2320 (sec. xv.-xvi.), f. 73; 75 (sec. xv.), 338:

Oxford: Bodl.: Can. Misc. 334, f. 59^b-94^b, 'secundum fr. Rog. Bacun': E. Musaeo 155, pp. 431-507, 'secundum mag. Rogerum Bacon': Digby 43 (anon.). —St. John's Coll. 172 (sec. xv.).—Corp. Chr. Coll. 124 (sec. xv.), anon.

Cambridge: Trin. Coll. 1389, f. 45^b.

Paris: Bibl. Nat. 7151, etc.

PRINTED: Basel, 1561, 1597.

52. *De expulsione veneni.* *Inc.* 'Ista subscripta sequerentur post capitulum de hiis que expellunt venenum'.

MS. Bodl. E. Musaeo 155, p. 507: not expressly ascribed to Bacon: it follows the *De Consid. quintae essentiae* in the MS., and is perhaps a part of it.

53. *Semita recta alchemiae* (or *Liber duodecim aquarum*), also attributed to Albertus Magnus. *Inc.* 'Talentum mihi creditum'.

MSS. Brit. Mus.: Sloane 513, f. 155-178 (sec. xv.): 'Explicit semita recta alkemie Alberti' (in English): Sloane 276, f. 21 (anon.); *cf.* Sloane 316 (Alb. Magnus); 633 (sec. xvii.) in English, attributed to both Roger and Albert.

Cf. Bodl.: Ashmole 1485, pp. 173-88 (sec. xvi.), 'Liber Aquarum': Ashmole 1490, ff. 92, 93.

54. *Thesaurus Spirituum*, four treatises on the influence of

[1] Also called 'De famulatu philosophiæ'; e.g. Sloane 1080, a, f. 6 (sec. xv.).

[2] *Cf.* Charles, *Roger Bacon*, p. 76.

planets, etc. *Inc.* 'Hec est doctrina omnium experimentorum'.

MS. Brit Mus.: Sloane 3853, f. 3-40 (sec. xv.): 'Hec est tabula libri sequentis . . . a quodam viro venerabili ordinis Minorum summa composita et ordinata, et a diligencia M. Rogero (*sic*) Bakon ordinis Minorum nuper recognita,' etc. 'Explicit liber qui secundum Robertum Turconem et Rogerum Bakon fratrem minorum Thesaurus spirituum nuncupatur.'

Cf. MS. Sloane 3850, f. 129ᵇ, *De nigromantia*, extracted from the above: and Sloane 3884, f. 44ᵇ, *Necromantiae Rogeri Bachon*, *inc.* 'Debes mundare manus et pedes'.

55. *Rogerina major*[1] *et minor*, two medical treatises, neither by Roger Bacon; one is by a Roger Baron.

MSS. Sloane 342, f. 146 (sec. xiii.), Bodley 786, etc. *Cf.* Charles, *Roger Bacon*, p. 75.

PRINTED: Venet. 1498.

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56. *De intellectu et intelligentia*, and *De nutrimento*, ascribed to Bacon in the Old Catalogue of the Bodleian MSS. are by Albertus Magnus.

MSS. Digby 55, f. 119 (anon.); 67, f. 107 (anon.).

PRINTED in *Opera Alb. Magni* (ed. Paris, 1890, etc.), vol. ix.

57. *Philosophia Pauperum*, or *Summa philosophiae naturalis* (*inc.* 'Philosophia dividitur in tres partes'), ascribed to Bacon in Old Catalogue of Bodl. MSS., is by Albertus Magnus.

MS. Digby 150.

58. *Kalendarium*, wrongly attributed to Bacon, made by a Minorite (?) at Toledo, 1292 or 1297.

MSS. Brit. Mus: Cott., Vesp. A. ii., f. 2.
Bodley 464, f. 58-72 (sec. xiv.).

[1] *Inc.* 'Sicut ab antiquis habemus auctoribus'. Cf. Göttingen Univ. Lib. Hist. Nat. 12, f. 49-96.

59. *De Magnete. Inc.* 'Amicorum intime, quandam magnetis lapidis'—by Peter de Maricourt.[1]

MS. Bodl., E. Musaeo 155, pp. 414-26 (anon.).

But *cf.* MS. Munich, Bibl. Reg. 10275 (sec. xvi.), 'Rog. Bacon de virtutibus magneticis,' and 10749 (sec. xvii.). Rome, Vatican Pal. Lat. 4091, f. 88 (sec. xvi.) 'de mirabili certificio quod fit per lapidem magnetem'.

60. *De Musica. Inc. in verbis:* 'Consequenter de numero aliquantulum similiter prout ad principale intentum sufficienter explicemus; et primo interpretando, secundo diffiniendo, tercio dividendo, sicut prius fecimus, procedamus'.

MS. Milan: Ambrosiana, R. 47 sup. f. 43 (sec. xiii.).[2]

61. *De sacrae scripturae profundis misteriis authore Rogero Bacon.*

MS. London: Gray's Inn 17 (sec. xv.); the title is in a later hand. The work consists of an alphabetical arrangement of certain words occurring in the Scriptures with their symbolical meanings. The first two leaves of the first quire are wanting, and the text begins: 'id est secretorum sacre scriptura profunda misteria,' the word commented on being *Abissus*. The last word discussed is *Zona*. Perhaps the *expositiones vocabulorum* of Roger 'Compotista,' monk of Bury St. Edmund's, or the *Distinctiones fratris Mauricii*, certainly not Bacon.

[1] Charles, *Roger Bacon*, 18; and paper by Silvanus P. Thompson read before the Brit. Academy, 28 Nov. 1906. (*Proceedings of the Brit. Acad.* II.).

[2] The treatise is anonymous, but is in a volume containing some of Bacon's works and is attributed to him in Montfaucon's Catalogue. Mr. Steele kindly lent me his facsimile of the MS., and I agree with him that the work is not by Bacon. The author was a physicist with some knowledge of alchemy. His general philosophical position may be inferred from the following extracts: 'Iterum forma est principium individuandi et ab aliis distinguendi . . . forma est principium cognoscendi et sic originandi in anima veritatem . . . forma ultimo est principium operandi'. The treatise *De valitudine* [*valore*] *musices* (*inc.* 'Secundum Boethium et ceteros autores musices') ascribed to Bacon by Bale *Index Script. Brit.*, p. 395, is probably an extract from *Opus Tert.*, ed. Brewer, p. 296.

62. *Extracts:*

Ashmole 346, f. 94b-96 (sec. xvi.), 1426 f. 43, 1485 (sec. xvi.), 1492, 1494, etc.

Sloane 238, f. 214b-216b (sec. xv.), *de fistula*, 'secundum Rogerum Bacon ut habetur in libro qui dicitur Thesaurus pauperum' (a medical work attributed to Petrus Hispanus and to Arnold de Villa Nova).

Sloane 2629, f. 55-6: 'quatuor sunt sapientie inimica maxime: primum est presumptio humani cordis . . . '.

Sloane 2208, 'the ancient work of Roger Bacon as it was used by the fryer of Glassenburie'.

ADDENDA.

(i) The Bibliotheca Angelica at Rome, MS. 1017 (sec. xiv.), contains fols. 76-92 (according to Narducci's Catalogue): [Pars quarta cuiusdam tractatus Theologiae]; *inc.* 'Conpletis 4^{or} partibus 3^{ii} libri de compendio studii theologie sequitur 4^{a} pars istius libri que est de perspicacia (!) que fundatur in actionibus agentium et virtutibus eorum que influunt in materiam mundi'. This is evidently by Roger Bacon, and may be a version of the *De Mult. Specierum* intended for the *Compendium Philosophiae*. (Cf. Bale, *Index Brit. Script.*, p. 394, *Leges multitplicationum: inc.* 'Expletis quatuor partibus tertii libri,' from MS. formerly at Peterhouse, Cambridge.)

(ii) *Speculum Astronomiae; inc.* 'Occasione quorundam librorum,' generally ascribed to Albertus Magnus, and printed among his works (*Opera Omnia*, Lugd. 1621, vol. v.; Paris, 1891, vol. x.), is ascribed to Roger Bacon by Mandonnet, who maintains that it was written in 1277: *Revue Néo-Scolastique de Philosophie*, xvii., pp. 313-335 (August, 1910). Cf. MSS. Digby 81, f. 102; 228.

(iii) *Tractatus de incarnatione sive de secretis philosophiae*, or *De probatione fidei Christianae per auctoritates paganorum*, or *De adventu Christi secundum carnem: inc.* 'Quoniam occasione cuiusdam sermonis quem ad clerum feceram,' generally ascribed to John of Paris O.P. (surnamed 'Qui dort'), is ascribed to Roger Bacon by Father F. Delorme, who is preparing an edition of the work. *Cf. Archivum Franc. Hist.*, April, 1911; *Archiv f. Lit. v. K. Gesch.*, iv., 312-339.

MSS. Oxford: Bodl. Can. Eccl. 19 (sec. xiv.)—Lincoln Coll. 81 (sec. xv.).

Paris: Bibl. Nat. Cat. 13781—Bibl. de l'Arsenal, 78.

Laon, 275.

Cf. Bateson, *Cat. of Syon Monastery*, O 60 (p. 148), K 18 (p. 259).

(iv) *Posteriora—inc.* 'Dictum est de syllogismo in universali'—ascribed to Bacon by Bale, *Index Script. Brit.*, p. 394. Unknown.

(v) *De forma resultante in speculo—inc.* 'Queritur de forma resultante in speculo'—ascribed to Bacon by Bale, *ibid.* Unknown.

(vi) *De fluxu et refluxu maris Anglici—inc.* 'Descriptis his figuris circa mod.'—ascribed to Bacon by Bale, *ibid.*, p. 395. Probably by Walter Burley: cf. MS. Digby 103.

(vii) A copy of the *Spec. Alchemiae*, No. 42, is in a Phillipps MS. sold at Sotheby's, April 24, 1911, Lot 7, f. 169 (sec. xv.): *inc.* 'Multipharie multisque modis' (anon.).

INITIA OPERUM IN PRAECEDENTI CATALOGO CITATORUM.[1]

[1] A few *initia* of separate parts, not expressly mentioned in the catalogue of works, have been added in this index. They are enclosed in square brackets.